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The Effectiveness of Note-taking Strategies in Fostering Second-Year EFL Students' Academic Achievements. The Case of Saida University

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Declaration of Originality

I hereby declare that this submission is my work and that, it contains no material previously published or written by another person nor material that has been accepted for the qualification of any other degree or diploma of a university or other institution.

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Dedication

To my beloved family and friends,

Thank you for your unwavering love and support throughout my journey. I am deeply grateful to you for believing in me, especially when I struggled to believe in myself. I appreciate every single kind word, gesture, and moment you have shared with me, no matter how small, as they made all the difference.

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Abstract

Note taking is a crucial skill in the learning process, supporting learners in organizing information and improving academic performance. However, many students either neglect this practice or apply it ineffectively. This study investigates the effectiveness of note-taking strategies in enhancing the academic achievement of second-year EFL students at the University of Saida. It also explores students' awareness of note-taking practices and examines how strategic instruction influences their practices. To achieve these aims, a mixed-methods approach was adopted within an exploratory, quasi-experimental framework. A questionnaire was administered to 21 students, and interviews were conducted with five EFL teachers. In addition, seven observational sessions were used to document students' note-taking behavior, alongside pre- and post-tests allowed comparison between an experimental group and a control group. The experimental group received two sessions of instruction in note taking with a more focus on mind-mapping technique, while the control group received no strategy-based intervention. Findings revealed that many students' notes lacked organization and clarity. While test scores showed no significant difference between the groups, students in the experimental group demonstrated noticeable improvement in the structure and clarity of their notes. These findings highlight the need for more sustained and integrated note-taking instruction rather than isolated interventions. This study emphasizes the value of explicitly teaching note-taking strategies in EFL classrooms and encourages further research into their long-term impact on students' academic development.

Keywords: academic performance, EFL learners, instructional intervention, note-taking strategies, mind-mapping

Table of Contents

List of Tables

List of Figures

List of Pie-charts

List of Bar-graphs

List of Abbreviations

EFL: English as a Foreign Language.

ESP: English for Specific Purposes.

L2: Second year.

NTS: Note-taking strategies.

NT: Note taking.

Q: Question.

SDT: Self Determination Theory.

List of Appendices

General Introduction

Education remains one of the most powerful tools for personal, societal and professional development. It equips learners with the knowledge, skills, and attitudes required to thrive academically and professionally. In higher education, students are expected to engage with the content critically and independently. Among the strategies that contribute significantly to learners' academic performance, note taking has gained considerable attention. It is a mental and physical process that involves listening, selecting, organizing, and recording information for later review and use. Effective note taking not only enhances concentration during lessons but also promotes retention, comprehension, and the ability to engage in critical thinking.

In the EFL context, students often face unique challenges that make academic success more demanding. These include language barriers, unfamiliar vocabulary, and the pressure to perform in a foreign language. In such a learning environment, note taking becomes even more critical. However, in the Algerian context, many EFL learners either lack knowledge of effective note-taking techniques or adopt disorganized and random practices. Some students rely solely on pre-distributed handouts or available online lectures, which may limit their engagement with the learning process and reduce the opportunity for deeper understanding.

This raises important questions about the extent to which students are equipped with effective note-taking skills and the ways in which such skills may influence their academic achievement. These concerns form the basis of the present research, which aims to investigate the impact of note-taking strategies on the academic performance of second-year EFL students. It seeks to explore how students currently take notes, how explicit instruction in note taking affects their academic performance, and which practical strategies can be introduced to improve their note-taking practices. This study is significant, as it highlights how training intervention can promote students' performance, and offers plans that can be implemented to help students structure their notes and adopt effective note-taking skills.

The research addresses three central questions:

- Do EFL students know how to take notes, or do they take notes in a random manner?
- Do students who receive instruction in note taking perform differently from those who do not?
- What strategies can be implemented to help students develop effective note-taking habits?

To answer these questions, the researcher hypothesizes that:

- Students may lack structure in their notes.
- Learners who receive instruction in note taking may outperform those who do not.
- Training may be an effective strategy that promotes students note-taking habits.

To investigate these hypotheses, the study adopts an exploratory, quasi-experimental approach within a mixed-methods design. Four data collection instruments are employed to gather information from second-year EFL students at the University of Saida: a semi-structured questionnaire administered to 21 students, semi-structured interviews conducted with five EFL teachers, seven classroom observational sessions, and pre and post-tests. Additionally, the pre-test and post-test are conducted with two groups: an experimental group of 10 students who receive instruction in mind-mapping as a note-taking strategy across two sessions, and a control group of 11 students whose performance is compared with the experimental group to evaluate the effectiveness of the intervention.

The research is organized into three chapters. The first chapter will present a review of existing literature related to note taking, academic achievement, and EFL learners' educational experiences. The second chapter will outline the research design, including methods, participants, and instruments. It also will provide an analysis of the collected data and interpretation of the results. The third chapter will offer practical recommendations for both teachers and learners to enhance note-taking practices and discusses challenges encountered during the research process.

The relevance of this study lies in its attempt to address an underexplored area in Algerian higher education. Despite the acknowledged importance of note taking in supporting academic success, little practical attention is given to strategy instruction in EFL classrooms. This study responds to that gap by examining the pedagogical impact of note-taking strategies on students' academic learning. By offering structured and research-based techniques, it aims to empower students to become more autonomous and strategic learners alongside supporting educators in integrating effective note-taking instruction into their teaching practices.

CHAPTER ONE

REVIEW OF NOTE TAKING WITHIN EFL CONTEXT

1.1 Introduction

In an academic setting, the ability to capture, organize, and process information is crucial for learning and retention. Whether scribbled in a notebook or recorded on a digital device, notes serve as a personal archive of knowledge, helping students bridge the gap between passive listening and active understanding. Despite its significance, some students take notes instinctively, while others struggle with structuring information effectively, sometimes relying entirely on provided materials rather than developing their own learning strategies.

As both a cognitive and pedagogical practice, note taking (NT) has long been explored by scholars who recognize its role in enhancing comprehension and academic performance. The concept has evolved over time, shaped by different theoretical perspectives and technological advancements. While some researchers emphasize its function in knowledge retention and active engagement, others highlight its role in developing critical thinking and self-regulated learning. This chapter provides an overview of these perspectives, tracing the historical development of NT, its cognitive underpinnings, and its significance in educational settings. By doing so, it lays the groundwork for understanding how note-taking strategies (NTS) influence students' academic achievement, a question that will be further examined in the following chapters

1.2 The Role of Note Taking in Academic Learning

NT plays a pivotal role in academic success. It is not only a method for recording information but also a tool for organizing thoughts, enhancing memory, and facilitating comprehension. Students across disciplines rely on it to capture essential concepts, synthesize knowledge, and support critical thinking. Understanding its historical roots, definitions, importance, and purposes is fundamental to evaluating its impact on learning.

1.2.1 Historical Evolution of NT

Throughout history, humans have relied on their memory to transmit information through oral techniques, such as storytelling. Over time, research has demonstrated that our working memory has a limited capacity, which can be enhanced through repetition. Therefore, people start writing things down in order to facilitate the recall of information for future reference. This practice is referred to as the retention function (Shippard, 2015).

Historically, the act of NT has undergone a fascinating rise over the centuries starting from the handwritten scrolls to the digital age of the sophisticated applications (Khan, 2024). In ancient Greece, scholars developed *hypomnema*, personal records used to document

important subjects, reflecting the cultural emphasis on preserving knowledge (Blair, 2010). Similarly, during the Renaissance, the commonplace book became a popular tool for compiling excerpts from various texts, facilitating the organization and retrieval of information (Blair, 2010).

In the 15th century, the invention of the printing press led to an explosion of available texts, necessitating more systematic approaches to NT. Scholars devised techniques and authored manuals on efficient NT to manage extensive reading materials effectively. By the early modern period, NT had become a crucial skill for scholars, influencing the way knowledge was recorded and transmitted (Blair, 2010).

1.2.2 Definition of NT

NT is a crucial activity in the learning process that involves both mental and physical effort. According to the Oxford Dictionary, NT is: "*noting something down*" to be retrieved later.

Many researchers define NT in different ways. Richard Nordquist (2019) states NT as "*the practice of writing down or otherwise recording key points of information*". This means that NT refers to the act of documenting the main terms that need to be remembered.

Piolat et al. (2005, p 291) describe it as "*a complex activity that requires comprehension and selection of information*" involving the identification and recording of fundamental ideas from what is understood. They further explain that "notes" can be defined as "*short condensations of a source material that are generated by writing them down while simultaneously listening, studying, or observing*" (p292). Which means that NT often occurs in real time, requiring the ability to summarize information while engaging in activities like listening, studying or observing.

Dewitt (2007) argues that NT as "*an external memory aid that refers to writing brief record of information to be remembered*" (p 46). This points out that NT works as a tool for memory enhancement, since it captures essential information in a concise manner, making it easier to recall and use later.

Silvestre et al. (2014, 39) pinpoint that NT is "*a discipline agnostic activity where learners add personalized contents in reaction to the content delivered by teachers*". They highlight that NT is cross-disciplinary task where students incorporate their own customized input as a response to the materials presented by instructors.

Salame et al. (2024, p.600) highlight NT as:

a vital skill in the field of education which is useful for students at all levels be it elementary school or college. Note-taking raises a person's attention to the text by indicating which thoughts should be written down and which should be left out.

This clearly highlights that NT indicates that learners should pay attention to what they read in order to jot down what is relevant and omit unnecessary ideas which makes it a crucial skill in the educational process.

1.2.3 Purpose of NT

NT serves multiple purposes beyond mere information recording, acting as a bridge between comprehension, retention, and practical application in various learning and professional settings. According to Friedman (2014) and Macdonald (2014), NT plays a crucial role in learning by facilitating the retrieval of stored information from long-term memory. It also serves as an external cognitive aid, making content more explicit for future reference. Additionally, NT enhances learning by fostering connections between ideas, assisting learners in processing information, and enabling them to apply acquired knowledge in new contexts.

Moreover, it supports students in comprehending new materials, organizing their studies for exams, planning future events and activities, making purchases, preparing technical presentations, designing models in various industries, and documenting work meetings (Piolat et al., 2005). Similarly, Haghverdi et al. (2010) emphasize that note-taking is valuable for preparing technical talks and recording work-related minutes.

These insights highlight the significance of NT in enhancing memory retention, comprehension, and knowledge construction.

1.2.4 Significance of NT

NT is a critical skill that significantly impacts academic performance. It facilitates quick information recall, aids in planning for future activities, fosters reflection, and enhances learning by identifying key materials (*the encoding hypothesis*) and reviewing recorded notes (*the external artefact hypothesis*) (Haghverdi et al., 2010).

Cottrell (1999; as cited in Haghverdi et al., 2010), points out that taking notes serves several purposes: it records relevant information, tracks sources, improves understanding through the selection of key points, and aids in writing by supporting planning, organization, and the flow of ideas. Due to its various benefits, NT has been a significant subject of study over time. Numerous researchers have investigated its role in enhancing skills, improving retention, and fostering academic achievements.

For instance, Kiewra et al. (1991) find that repeated lectures positively influence recall and NTS. Students presented with the same lecture multiple times often adjust their methods of learning, leading to the inclusion of less critical information in their notes.

Additionally, students who review their notes before exams tend to perform better than those who do not.

Slotte and Lonka (1999) emphasize that NT contributes to text comprehension, even when done spontaneously and without formal instruction. Castelló and Monereo (2005) identify NT as an effective tool for learning, assessment, and self-regulation. Hayati and Jalilifar (2009) highlight a clear connection between NT and listening comprehension, demonstrating that individuals who take notes generally outperform those who do not. Moreover, instructed note-takers exhibit even better performance than those who lack guidance.

Research by Rahmani and Sadeghi (2011) shows that students who learn to use graphic organizers and receive instruction in NT perform better than those who do not. This study not only investigates the effects of NT instruction but also reveals gender differences where females excel in comprehension, while males tend to retain information better.

Bahrami and Nosratzadeh (2017) find a strong correlation between NT and reading comprehension, indicating that effective NT enhances reading skills by allowing students to record information, retrieve details, and improve listening abilities. Further research by Salame et al. (2024) underscores that effective NTS directly affect students' academic success. Specifically, there is a demonstrable relationship between the organization, usage, proficiency of NT and overall academic performance.

Unfortunately, in the Algerian context, students often receive little to no instruction on NT during their schooling. This shortcoming can make the transition to university particularly challenging, as students heavily rely on NT without having developed effective techniques (Guellati & Keskes, 2022). The situation has been exacerbated by the shift to e-learning following the COVID-19 pandemic, which introduced students to different platforms, such as Moodle, leading many to forgo traditional NT in favor of readily available lecture materials (Sahnoune & Ghembaza, 2024).

Therefore, it is imperative to raise awareness of the importance of effective NT among students, emphasizing its role in enhancing learning outcomes and academic performance.

1.3 Note Making

Note making goes beyond the passive recording of information; it involves an active engagement with content to deepen comprehension and memory retention. According to the University of Leeds (n.d.), note-making is "*a process of reviewing, connecting, and synthesizing ideas from your lectures or reading*". This approach encourages learners to

mentally process information, enabling them to establish meaningful connections and integrate new knowledge with prior understanding.

Effective note making typically begins before lectures or readings. Students are encouraged to consider learning objectives and assess how new material fits into their academic goals (University of Leeds, n.d.). This often involves reading books, journal articles, and other resources in advance. Furthermore, the University of Southampton (n.d.) stresses the importance of referencing properly and avoiding plagiarism as part of responsible note making.

Marin et al. (2021, p. 3) describe note making as "*a form of writing that involves not the transcription of another's speech but its translation, such that it makes present the new thinking that takes place between lecturer and students*". This highlights how note making is not about copying verbatim, but rather transforming the content into personalized understanding. By rephrasing and reorganizing ideas in their own words, students actively reconstruct knowledge in a way that supports critical thinking, memory, and application.

In essence, note making is a reflective, analytical process that supports deeper engagement and encourages learners to become active participants in their academic development.

Table 1.1: Key Differences Between Note taking and Note making

Aspect	**Note taking**	**Note making**
Purpose	To record information during a lecture or reading.	To process, reflect on, and connect ideas after the lecture or reading.
Timing	During learning (real-time).	After learning (review and synthesis)
Process	Copying or writing down key points.	Reviewing, summarizing, rewording and organizing content.
Level of Engagement	Relatively passive (especially of copying only).	High active and analytical.
Format	Often linear or outline base.	Personalized, often includes annotations, summaries and visual links.
Cognitive Load	Focus on comprehension and recording.	Focus on interpretation, integration and synthesis.
Output	Raw, unprocessed information.	Refined, organized understanding suited for exam preparation or essays.

1.4 Stages of NT

NT is a multi-stage process that plays a central role in students' academic success. According to Boyle (2007), it can be divided into three key stages: before, during, and after the lecture. Each stage requires specific strategies that help improve attention, comprehension, and retention.

1.4.1 Before the Lecture

Preparation is essential for effective NT. Boyle (2007) suggests that teachers can support students by offering cues or previews of upcoming lecture content. Students, in turn, should engage in pre-lecture reading and position themselves in the classroom where visibility and audibility are optimal, especially for those with visual or auditory difficulties. Additionally, ensuring they have all necessary materials helps avoid distractions.

Touati (2014) reinforces this by emphasizing that students should come prepared with an understanding of what is likely to be covered and remain alert to identify important information. Similarly, Chen (2021) encourages learners to plan the structure of their notes in advance, such as dividing pages into columns or sections that facilitate organized recording during class.

1.4.2 During the Lecture

During lectures, students must balance multiple cognitive tasks, such as listening, thinking, selecting, and writing. According to Touati (2014), students are expected to actively take notes while engaging with the instructor's delivery. Friedman (2014) emphasizes that notes taken during lectures should be well-organized and structured, as this significantly enhances comprehension and performance.

Chen (2021) adds that NT should not be a verbatim transcription. Instead, students should paraphrase using their own words, apply abbreviations and symbols, and leave space between ideas for later elaboration. He also suggests that students should ask questions when they encounter unclear points and, if possible, record lectures to revisit any missed information. Effective NT at this stage requires the application of cognitive, metacognitive, and resource-management strategies.

1.4.3 After the Lecture

The post-lecture stage is critical for consolidating learning. Friedman (2014) recommends reviewing notes as soon as possible, as this promotes deeper understanding through the reinforcement and connection of ideas. Techniques such as summarizing, self-testing, creating flashcards (e.g., Cornell Notes), and frequent review sessions improve memory retention and transfer of knowledge to long-term memory.

Chen (2021) highlights that reviewing helps students identify gaps or unclear content in their notes. He advises checking with classmates or seeking clarification from instructors to complete or correct any missing points. Furthermore, he encourages forming study groups to compare notes, engage in discussions, and collaboratively solve any uncertainties, which reinforces both comprehension and recall.

1.5 Instructing NT

NT is a cognitively demanding activity that involves both mental effort and physical execution. For this reason, it is essential for educators to assist students in learning how to take structured and effective notes. Boyle (2007) emphasizes that teachers should deliver content in a clear and organized manner, using strategies that help students identify key information more easily.

One such strategy is the use of verbal signposts which are" *those statements used to alert students to important points*" (Boyle, 2007, p.229). He further identifies two main types of cues: organizational cues that help cluster related ideas, and emphasis cues, which highlight particularly important concepts. These cues can serve as prompts that guide students toward selecting and recording relevant material.

Additionally, Boyle (2007) recommends that instructors adjust their speech patterns by incorporating pauses and varying intonation. This gives students enough time to process and write down the information. Slowing down the pace of delivery can significantly improve the quality and quantity of students' notes.

Instruction on shorthand and abbreviation systems is another practical strategy. Training students to use concise symbols and abbreviations allows them to record more information quickly and efficiently, which can be particularly beneficial during fast-paced lectures.

According to Luo et al. (2016), students benefit from skeletal notes which are pre-structured outlines that highlight the most important points. These notes serve as cognitive scaffolds, helping students follow the lecture more effectively and structure their own notes based on the guided framework.

Finally, reviewing or summarizing the lecture content reinforces students' understanding and improves retention. When instructors revisit main points or summarize key takeaways, it helps learners solidify their knowledge and organize it more meaningfully.

Instructing students on how to take effective notes extends beyond individual strategies. As learners bring diverse needs, learning styles, and motivations into the classroom, teachers may consider additional instructional methods that foster engagement,

cooperation, and autonomy. Two powerful approaches that support this goal are collaborative NT and motivational scaffolding.

Collaborative NT encourages peer interaction and shared responsibility for learning, fostering deeper engagement and knowledge construction. Meanwhile, motivation plays a crucial role in whether students choose to engage in NT at all, and how persistently and effectively they apply the strategies taught. Both factors deserve attention when designing pedagogical practices around NT.

1.5.1 Collaborative NT

Collaborative NT is an instructional strategy rooted in the principles of cooperative learning. Since the 1980s, collaborative learning has gained prominence across various disciplines and instructional settings within virtual or in class instruction. Laal and Ghodsi (2012, p. 486) define collaborative learning as "*an educational approach to teaching and learning that involves groups of learners working together to solve a problem, complete a task, or create a product*". When applied to NT, this approach enhances learning through peer interaction and shared cognitive effort.

Costley and Fanguy (2021), along with Fanguy et al. (2021), highlight several reasons for integrating collaboration into NT instruction. First, working in groups promotes active learning and the co-construction of knowledge, leading to deeper individual understanding. Additionally, collaborative NT often improves the quality and depth of notes, enriching the learning experience. It also helps to reduce cognitive overload, as the mental effort is distributed among group members rather than concentrated on a single student.

Costley and Fanguy (2021) emphasize that collaborative NT minimizes the effects of extraneous cognitive load, which refers to unnecessary mental effort that can interfere with learning. At the same time, it enhances germane cognitive load, which supports understanding and the internalization of concepts. Although students may experience occasional confusion during collaboration, which can temporarily increase cognitive demand, the overall impact is positive. These benefits are maximized when collaborative NT is guided by clearly defined instructional goals that help students focus their efforts and engage more purposefully with the content.

Fanguy et al. (2021) also note that group note-takers tend to outperform individual note-takers in information recall, although their performance in writing tasks may vary. This suggests that collaborative NT can be more effective when teachers direct it toward specific learning goals, such as comprehension or discussion, rather than assessment-oriented writing.

From a theoretical perspective, collaborative NT aligns with Vygotsky's (1978) social constructivist theory, which posits that learning is socially mediated and occurs through interaction with others. As students co-construct notes, they engage in deeper thinking and meaning-making, which fosters critical thinking and higher-order learning.

Ahn et al. (2016) further develop a collaborative practice called the "*communal notes*" activity, where students build on their previous notes by linking them to new lecture content. This task encourages creative, meaningful engagement and enhances students' agency, peer relationships, and collaborative learning.

While collaboration supports engagement and shared cognitive effort, another critical component of effective NT instruction is motivation. It is motivation that ultimately drives students to attend lectures attentively, apply NTS, and persist in reviewing or refining their notes. Understanding how motivation operates within educational contexts provides valuable insight into how NT behaviors can be encouraged and sustained.

1.5.2 Motivation

Motivation is a fundamental psychological factor that can either facilitate or hinder the learning process. Cole et al. (2004, p. 67) define motivation as "*the willingness to attend and learn material in a development program*". They argue that while ability and capacity determine academic potential, motivation significantly influences the amount of effort and focus students devote to a particular task, such as NT.

One of the most influential frameworks in this area is the Self-Determination Theory (SDT), developed by Deci and Ryan (1985). According to SDT, motivation is shaped by three basic psychological needs: autonomy, competence, and relatedness. These needs help determine whether a student is intrinsically motivated (driven by interest or enjoyment) or extrinsically motivated (driven by external rewards or pressures). Ryan and Deci (2000, p. 55) explain that intrinsic motivation refers to "*doing something because it is inherently interesting or enjoyable*", while extrinsic motivation refers to "*doing something because it leads to a separable outcome*".

Motivation also includes cognitive processes such as goal setting and self-belief. Elliot et al. (1999, p. 549) define goal orientation as "*the purpose of task engagement, and the specific type of goal adopted is posited to create a framework for how individuals interpret and experience achievement settings*", which shapes how students approach and experience academic tasks. They distinguish between competence goals and mastery goals, both of which are relevant to note-taking. Reddington et al. (2015) find that students with

mastery goal orientation are more likely to take high-quality notes and perform better on written recall tasks.

Another key motivational factor is self-efficacy, which refers to "*the beliefs (i.e., perceptions, expectations) that individuals hold regarding their ability to organize and implement the actions needed to reach determined goals*" (Bandura, 1995, as cited in Díaz-Mujica et al., 2022, p. 39). This concept originates from Bandura's (1986) social cognitive theory and reflects students' confidence in their ability to succeed. Moos (2009) emphasizes that self-efficacy acts as a motivational driver that enhances performance and directly influences the content and quality of students' notes.

Mashhady et al. (2015) provide evidence that students with higher levels of self-efficacy are more likely to apply effective NTS, which leads to the development of stronger NT habits over time. Therefore, incorporating motivational elements into instruction, such as setting achievable goals, providing autonomy, and fostering a sense of competence, can substantially improve students' NT performance and learning outcomes.

1.6 Barriers to Effective NT

NT is a fundamental aspect of the learning process, requiring significant physical, linguistic, and cognitive effort. However, students often encounter various challenges when engaging in this practice. These challenges can be categorized into cognitive, psychological, personal, contextual, and pedagogical factors.

From a cognitive perspective, students may struggle to comprehend or interpret an instructor's explanations in real time. According to Siegel (2022), note-takers must constantly decode spoken input, decide what is essential, and determine how best to record it, often under tight time constraints. In this context, working memory plays a pivotal role. Students with higher working memory capacity are generally more effective at organizing and retaining information during NT tasks, as they experience less cognitive overload (Friedman, 2014).

Another significant factor influencing NT is student interest. When learners find the topic engaging, they are more likely to take notes attentively, otherwise they may hesitate or disengage (Siegel, 2024). Furthermore, the familiarity of the content can affect students' NT behavior. New information often encourages students to take notes, whereas topics they already understand may lead them to forgo the process.

External elements such as the lecturer's speaking pace, accent, and volume can also impact students' ability to take notes effectively. If an instructor speaks too quickly, uses a low voice, or has an accent that students struggle to understand, comprehension becomes

difficult. A well-paced lecture with clear pronunciation and an audible voice enhances students' ability to process and record information (Siegel, 2024). Moreover, selecting an appropriate time for delivering complex material is crucial, as cognitive load varies throughout the day and can influence students' ability to absorb and document information efficiently.

Time constraints present another challenge, as students must simultaneously listen to the lecturer and record key points within a limited timeframe. The pressure to balance both tasks can hinder NT effectiveness (Siegel, 2022).

Pedagogical approaches also play a role in students' NT abilities. Many educators lack explicit strategies for teaching students how to take effective notes or fail to incorporate NT instruction into their teaching methods, particularly in second-language learning contexts (Siegel, 2022). Linguistic barriers further complicate this issue for second-language learners, as they must not only grasp the lecture content but also navigate differences in NT conventions between their native and target languages (Çibik & İpek, 2024).

Addressing these barriers is essential for enhancing students' NT skills. Implementing strategies that support learners in overcoming these challenges can significantly improve their academic performance and overall learning experience.

1.7 NT and Technology

The practice of NT has witnessed significant transformation due to technological advancements. The emergence of digital tools has offered new possibilities for capturing, organizing, and reviewing information. These tools include computers, tablets, smartphones, smart pens, and specialized applications, all of which facilitate more efficient and accessible NT experiences for students.

In educational settings, computers support both note creation and assessment. Barrett et al. (2014) explain that typed notes not only make information easier to record and edit but also assist educators in evaluating student performance through computer-administered assessments and digital submissions.

Moreover, tablets and mobile phones offer various functionalities that benefit note-takers. According to Stacy and Cain (2015), they allow students to write notes by hand, draw diagrams, highlight key information, and reduce the need for printed materials. Additionally, they help learners organize their notes more effectively and support quick recall of information.

Smart pens represent a recent innovation in NT technology. Designed initially to assist students with learning difficulties, smart pens come in two main types: those that can

be used on any paper, and those that require specialized dot paper (Boyle & Joyce, 2021; Belle et al., 2024). Boyle et al. (2015) state that these pens can digitize handwritten notes and record audio simultaneously. They include features such as integrated cameras, audio playback, and interchangeable color tips for highlighting and drawing. These tools help students review lectures by synchronizing written content with recorded speech, enabling them to revisit key points efficiently. Examples of smart pens include the Livescribe Echo™, Livescribe 3 Pro Edition, and the Aegir Smartpen.

Furthermore, applications (apps) provide students with the ability to create, organize, and manage their notes more flexibly. These software programs are accessible on various digital devices and offer numerous features that enhance the learning process. Stacy and Cain (2015) highlight that mobile and tablet apps are particularly useful in educational contexts because they support diverse functionalities. These include typing, drawing, copying, pasting, highlighting, and summarizing. Moreover, students can use these apps to record audio, capture handwritten content, and store visual materials, all of which improve interaction with the subject matter. Boyle et al. (2015) emphasize that NT apps allow students to save content in multiple formats, organize their notes for later review, and share them easily across platforms. These capabilities make NT more accessible and engaging.

Eventually, the evolution of NT through technological innovations has significantly enhanced the ways students record, organize, and interact with information. From hardware devices like smart pens and tablets to multifunctional apps, these tools have made NT more efficient, personalized, and accessible. This shift reflects a broader trend in education where digital tools not only align with students' learning preferences but also support deeper engagement and academic performance.

1.8 Note-Taking Strategies

NT is not a one-size-fits-all skill. Students approach it in various ways depending on the learning context, individual preferences, and the tools available. Scholars have developed different classifications to describe how learners engage with NT.

One common classification divides NT into linear and non-linear forms, which reflect how information is organized visually and conceptually. Another way of categorizing NT focuses on the mode of delivery, distinguishing between traditional (handwritten) and modern (digital) approaches. The following sections explore each of these categories in detail.

1.8.1 Linear vs. Non-Linear Notes

Linear and non-linear NT represent two contrasting approaches to organizing information. Each has its own advantages and is suited to different learning styles and content types.

Linear NT follows a sequential structure. Students often record information using lists, bullet points, or outlines in the order it is delivered. This method is efficient for capturing lectures that are logically organized or heavily detailed. Piolat (2005, as cited in Makany et al., 2009) notes that linear strategies evolved in response to the speed of spoken lectures, which often exceeds the average writing speed. Learners developed linear systems to capture essential information under time constraints.

Non-linear NT is based on spatial and visual organization. Information is arranged in diagrams, maps, or clusters that reflect relationships between ideas. According to Ukume (2019), non-linear strategies are often personalized and may not be easily understood by others. However, they offer flexibility and can support deeper understanding by visually linking related concepts. Piolat (2005, as cited in Friedman, 2014, p. 9) find that non-linear methods tend to improve memory retention and help learners develop conceptual understanding.

The choice between linear and non-linear notes depends on the subject matter, the learner's preferences, and the goals of the task. Both approaches can be effective when applied in the right context.

1.8.1.1 Cornell Method

The Cornell Method is a widely adopted NTS developed by Walter Pauk in 1974 at Cornell University (Alzu'bi, 2019). It is structured into three sections: a NT area on the right, a cue column on the left, and a summary section at the bottom of the page (Quintus et al., 2012). This format is designed to enhance comprehension and retention by encouraging students to actively organize and reflect on the material.

According to Quintus et al. (2012), the method prompts learners to divide their notes into main ideas and supporting details, allowing for clearer review and easier recall. During the lecture, students write detailed notes in the right-hand column. Afterward, they add questions or key terms in the left column and complete the summary section to reinforce understanding.

Several studies (Quintus et al., 2012; Alzu'bi, 2019; Hoadjli & Bouguesba, 2021; Saran et al., 2022; Bakri et al., 2022), find that students trained in the Cornell Method show improved listening comprehension. These studies also demonstrate that this strategy

supports better academic performance due to its emphasis on reviewing and summarizing content. Moreover, it confirms that the Cornell Method enhances the organization and depth of students' notes, making it a valuable technique in educational settings.

1.8.1.2 Mind-Mapping

According to Choudhari and Desai (2017, p. 33), a mind-map is "*a diagram used to represent words, ideas, tasks, or other items linked to and arranged around a central key word or idea*". This technique functions as a visual method for organizing complex ideas by linking information through branches. It is developed by Tony Buzan around the mid-1970s (Choudhari & Priti, 2017).

Mind-mapping simplifies intricate concepts and enhances understanding. According to Buzan, T. and Buzan, B. (1996, as cited in Anthony et al., 1999, p. 393), a mind map is characterized by four main features: at its core, the central subject is positioned in the middle of the diagram. From there, primary themes extend outward as branches, which are further divided into smaller, related sub-themes. These branches incorporate keywords or images, connected by associative lines to illustrate relationships between ideas.

To enhance clarity and organization, different colors are often used to distinguish various elements within the map (Choudhari & Desai, 2017). Due to its structured yet adaptable format, mind-mapping proves to be an effective strategy for improving students' comprehension and retention of academic content.

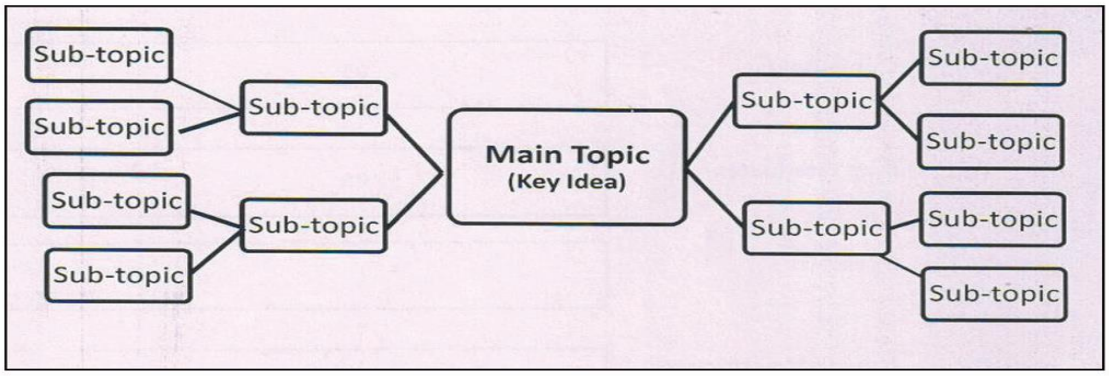


Figure 1.1: Basic Mind-Mapping Structure. Adopted from Choudhari and Priti (2017)

1.8.1.3 Outlining Method

An outline is a general plan of the content and how it will be presented. It provides a means of organizing information logically (Oermann, 2000). The outline method is a valuable tool for students, as it helps them structure their information, anticipate the flow of ideas, and develop their understanding. In the writing process, this technique has a significant impact on students' performance, as it enables them to produce well-structured pieces of writing while avoiding repetition. Additionally, it provides a clear overview of

what will be discussed, helping students develop and refine their ideas efficiently (Al Islamiah & Sari, 2021; Marmita et al., 2023).

When using this technique, students must decide which type of outline best suits their needs. They may opt for a topic outline when their ideas are clear and concise, or a sentence outline if their thoughts are still developing (Oermann, 2000). Outlining typically follows a hierarchical structure, with main headings positioned near the margins and subheadings progressively indented. This method is highly efficient, as it saves time and allows learners to recognize key ideas easily. However, its unconventional nature requires practice to master (Okafor, 2016).

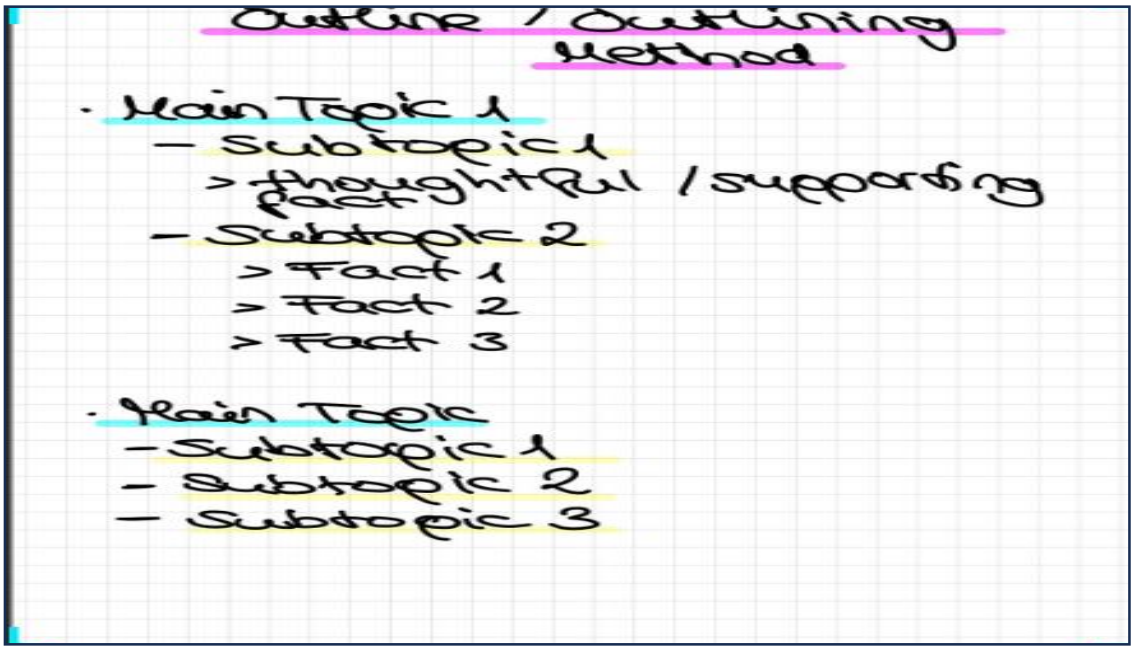


Figure 2.2: Outlining Method. Adopted from Alina (2019)

1.8.1.4. The Fishbone Method

The Fishbone strategy indicates causal relationships, highlighting that it is a technique used to analyze a problem and find solutions. It is a method that correlates causes and effects (Simanjuntak et al., 2022). It is also known as the Ishikawa diagram, named after its creator, Kaoru Ishikawa (1915–1989) (Simanjuntak et al., 2022; Munawir, 2022).

This strategy visually resembles the skeleton of a fish: the head represents the problem to be analyzed, the body describes the problem, and the tail presents the conclusion of the analysis (Wahyudi, 2024). The right side of the diagram represents the effect, while the branches highlight the causes (Sandra et al., 2019).

These features characterize the Fishbone strategy and make it a suitable tool for teaching writing (Wahyudi, 2024; Munawir, 2022), as it helps students understand how a central theme can have related ideas that may be developed and analyzed. Additionally, the

visual representation of this strategy assists learners in organizing their thoughts creatively. To use this method effectively, students begin with the result, analyze the causes, and identify the most likely ones before returning to the problem statement.

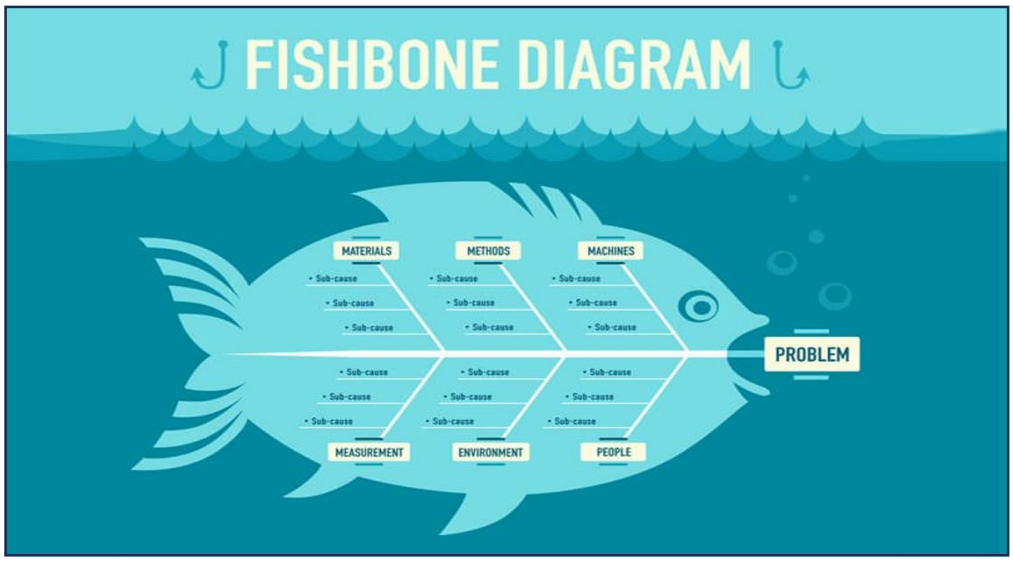


Figure 3.3: The Fishbone strategy. Adopted from Majka (2024)

1.8.1.5 SQ3R Method

The SQ3R method is a systematic reading strategy that includes five stages: Survey, Question, Read, Recite, and Review (Nabilla & Asmara, 2022). It is a self-regulated reading approach developed by Robinson in the early 1940s (Artis, 2008) and was first employed by the U.S. military during the Second World War (Nabila & Asmara, 2022). This method is particularly useful for intensive and rational reading, helping readers identify main ideas, retain information for longer periods, and engage actively in the reading process (Aziz, 2020). The five steps of the SQ3R method are explained as follows:

1. Survey: This step involves previewing the material before reading, including scanning titles, headings, and images to develop a clear and holistic understanding of the content.

2. Question: After surveying the text, students formulate questions based on the material. This step sets a purpose for reading and encourages critical thinking, helping them anticipate key information.

3. Read: Students then read the material attentively, focusing on finding answers to their questions. This step ensures more active engagement and better comprehension.

4. Recite: In this phase, learners summarize and restate key points and solutions in their own words. This process reinforces understanding and aids memory retention.

5. Review: The final step involves analyzing and evaluating the material to identify any missing information and consolidate learning. Reviewing helps improve long-term memory and ensures a deeper understanding of the content.

1.8.2 Modern vs. Traditional NT

In addition to the structural and strategic differences in NT, the tools and mediums used to take notes also play a significant role in shaping the learning experience. NT practices are commonly divided into two main types based on the method of delivery: traditional and modern.

Traditional NT refers to the use of pen and paper, where students write their notes manually. This method is often praised for its cognitive benefits, as the act of writing by hand encourages students to process information more deeply. It also promotes focus and limits distractions that may arise from digital devices. Writing notes manually requires learners to paraphrase, select key ideas, and structure their thoughts during the NT process, which can enhance comprehension and memory (Flanigan et al., 2023; Stacy & Cain, 2015).

In contrast, modern NT involves the use of digital tools such as laptops, tablets, smartphones, and specialized applications. These tools allow for quicker information capture and easier organization, as students can type, highlight, search, and store notes in one place. Digital notes are also more flexible in terms of formatting and accessibility, as they can be edited, backed up, and synced across multiple devices (Belle et al., 2024; Flanigan et al., 2023; Stacy & Cain, 2015).

Flanigan et al. (2023) and Stacy and Cain (2015) find that while digital NT offers greater convenience, traditional methods are often more effective for long-term retention. Thus, the choice between traditional and modern approaches depends largely on the learner's context, subject matter, and personal preferences.

1.9 Cognitive and Meta-cognitive Underpinnings of NT

To understand the mechanisms behind effective NT, it is essential to explore the cognitive and metacognitive processes involved. This theoretical lens provides insight into how learners encode, store, and retrieve information through NT, thereby connecting practical strategies with foundational learning theories.

1.9.1 NT as a Cognitive Process

The act of writing down information requires both physical and mental effort. From a cognitive perspective, NT involves several interrelated processes, such as comprehension, selection, and the production of notes. Piolat et al. (2005) explain that note-takers must understand spoken input, select relevant content, and store it in long-term memory. In this way, multiple mental activities occur simultaneously during the act of taking notes. Friedman (2014) adds that note-takers must pay close attention to what instructors say, comprehend the message, identify key points, and record them appropriately. All of these

tasks contribute to the complexity of NT, particularly under time pressure, which places demands on working memory as the mechanism that supports these processes.

Van Dijk and Kintsch (1983, as cited in Kiewra & Benton, 1988, p. 35) propose a discourse processing model that aligns with the requirements of NT. This model suggests that discourse comprehension and production function at three levels. The first is the propositional level, where learners construct meaningful units represented through codes or sentences that convey a single idea. The second is the local coherence level, which links these propositions to form logical sequences. Finally, macro-propositions are constructed through macro-strategies, allowing learners to identify the central theme or main topic of the discourse.

1.9.1.1 NT and the Encoding Process

NT during lectures requires both comprehension and transcription, which is referred to as the encoding effect (Makany et al., 2009). Kobayashi (2005) defines the encoding effect as the cognitive benefit gained from the act of NT itself, he states that the encoding effect of NT" *can be estimated by comparing learning outcomes of note-takers with those of non note-takers under the condition that they are given no opportunity of reviewing their own or provided notes afterward*" (p. 243). The encoding process involves mental effort, such as focusing on lecture content, retaining it in short-term memory, organizing it, and writing it down (Bui & Myerson, 2014). Kiewra (1989) emphasizes that the encoding function of NT contributes significantly to the learning processm, which enhances students overall NT abilities.

1.9.1.2 NT as Memory Aid

Dewitt (2007, p. 46) defines NT as "an external memory aid that refers to writing a brief record of information to be remembered." In this sense, notes function as a reference that can be revisited later to support learning. Guellati and Keskes (2022) argue that NT is advantageous because it allows students to review information at their convenience. Slotte and Lonka (1999) further note that reviewing notes is only effective when they are complete and well-assessed. Kiewra et al. (1988, as cited in Slotte & Lonka, 1999, p. 4) point out that the type of notes being reviewed matters significantly, with non-linear notes such as outlines and matrices proving more effective than linear ones. Piolat (2007) emphasizes that notes act as external memory supports by assisting the recall of information stored in working memory, which can then be applied to solve problems or elaborate on ideas. Therefore, NT serves as a valuable tool for preserving information over extended periods.

1.9.1.3 Working Memory

NT is recognized as a cognitively demanding activity that relies heavily on working memory. Baddeley (1986, 2007, as cited in Bui & Myerson, 2014, p. 13) defines working memory as "*the ability to temporarily hold and manipulate limited amounts of information*". The capacity of working memory influences both the quantity and quality of notes, and this capacity varies among individuals (Kiewra, 1989; cited in Piolat et al., 2005, p. 296; Reddington et al., 2015).

When working memory becomes overloaded, schemas help manage the cognitive load. Sweller (1994, p. 296) defines a schema as "*a cognitive construct that organizes the elements of information according to the manner with which they will be dealt*". Schemas help increase the efficiency of information processing within working memory. They also support essential NT tasks such as storage, rehearsal, and transformation of temporary information (Bui & Myerson, 2014).

In addition, working memory plays an essential role in both comprehension and production. Comprehension refers to paying attention and understanding lecture content, while production involves identifying significant ideas and physically recording them (Friedman, 2014). Working memory also assists in reducing cognitive load, retrieving stored information, and performing functions like reading comprehension, reasoning, and complex learning (Piolat et al., 2005; Bui & Myerson, 2014; Friedman, 2014).

1.9.1.4 Cognitive Load

When students take notes during lectures, they must simultaneously listen, comprehend, and write. This multitasking can result in cognitive load, which refers to the mental strain experienced when learners are overwhelmed by complex or excessive information (Vasile et al., 2011). Piolat (2007) observes that taking notes during reading tends to generate less cognitive load compared to taking notes during live lectures.

Cognitive load is typically divided into three types: intrinsic, extraneous, and germane. Sweller (2004) and Van Merriënboer and Sweller (2005, as cited in Moos, 2009, p. 1120) explain that intrinsic cognitive load arises from the inherent complexity of the material, which can be managed by adjusting content difficulty or learners' prior knowledge. Extraneous cognitive load is caused by poor instructional design and can be reduced through clearer presentation methods (Sweller, 2011). Germane cognitive load is associated with the learner's effort to construct schemas and automate knowledge (Kirschner et al., 2009)

1.9.2 NT as a Metacognitive Strategy

Metacognition is often a goal that educators seek to cultivate in learners because it fosters critical thinking and independent learning. Brown (1978, as cited in Akturk & Sahin, 2011, p. 3732) defines metacognition as "*students' awareness and organization of thinking processes that they use in planned learning and problem-solving situations*". In this context, metacognition involves knowing about cognitive strategies and applying them effectively.

Given that NT is a cognitively demanding activity, it naturally involves metacognitive skills such as attention, comprehension, planning, organization, and evaluation (Phan, 2020). Boyle et al. (2014) argue that the multitasking nature of NT which involves listening to the lecturer while writing, reflects the activation of multiple metacognitive processes. Haghverdi et al. (2010) support this view by stating that NT requires students to construct knowledge, plan their strategy, monitor their progress, and evaluate outcomes. According to the authors, this process not only promotes self-awareness but also empowers learners to take greater responsibility for their academic development.

1.10 Algerian Studies on NT

NT is a widespread activity used in various aspects of daily life, particularly in educational contexts where students rely on it to support their learning. This practice has been shown to significantly influence learners' academic performance, what makes it a topic of interest in educational research for decades. However, when speaking about NT in the Algerian context, there is a lack of research as it is mentioned by Keskes and Guellati (2022).

Furthermore, a scarce of efficient strategies to enhance NT is documented in the same study, as observed among learners. Thus, they recommend an adequate instruction on NT to be integrated within the curriculum.

Grine (2021) also investigates the significance of metacognitive listening in promoting NT and writing. She finds that there is an axiomatic link between an explicit instruction and modeling provided by teachers and development of listening skills. Which it contributes heavily on improving NT practices. Mourad (2014) in his study provides a review on NT from theoretical perspectives. He highlights its significance in educational settings and in the learning process, where he emphasizes on motivational consideration in instructing students.

In the field of interpretation, Larghueche (2021), in her study on retention in consecutive interpretation, stresses the importance of mastering NT by knowing when, how, and what to note, as it greatly improves interpreting performance.

Hoadjli and Bouguesba (2021) conduct a study to measure the effectiveness of the Cornell method on students' performance. They find that Cornell templates are successfully adopted among EFL learners and it positively affect students writing compositions. Due to the Covid19 pandemic and the adoption of Moodle as an online platform for learning/teaching, students alter their study habits where Sahnoune and Ghembaza (2024) investigate Moodle's impact on students NT practices during post-pandemic era. They find that it negatively influences students NT, as they do not take notes and rely on available lectures in this platform.

Based on the above, NT is a crucial act in the learning process as it significantly contributes to learners academic achievements. However, it requires a more in depth research in the Algerian context. Students as well need to be aware of its importance and receive an adequate training focusing on the practical side. This implies including NT as an independent course in academic curriculum.

1.11 Conclusion

NT stands as a fundamental pillar of the learning process, offering students a means to structure, retain, and engage with information more effectively. Throughout this chapter, the significance of NT has been explored from various perspectives; cognitive, pedagogical, and technological; highlighting its role in shaping academic performance. Research and theoretical insights confirm that when done effectively, NT not only enhances comprehension and recall but also fosters deeper learning and critical thinking.

However, despite its undeniable benefits, many students either overlook NT as a skill or approach it in an unstructured manner. Some rely entirely on provided materials, while others take notes passively without fully utilizing them as a tool for active learning. This gap between the potential of NT and its actual practice raises important questions about instruction, motivation, and strategy use in academic settings. As education continues to evolve, particularly with the integration of technology, there is a growing need to guide students in adopting effective NT techniques that align with their learning goals.

CHAPTER TWO
ANALYSIS OF STUDENTS' NOTE TAKING BEHAVIOR

2.1 Introduction

The present study aims to investigate the effectiveness of note taking strategies (NTS) in enhancing students' academic achievements. Therefore, the study demonstrates how this practice contributes in students' comprehension, retention and proposes different strategies to help students develop their NT skills. This chapter aims to evaluate students' awareness of NT significance, techniques, structure, and their practices regarding this activity. In addition, it seeks to investigate possible strategies and recommendations to promote NT. Moreover, this chapter delves into evaluating the impact of NT training on EFL students' performance.

The chapter focuses on analyzing the research' findings, commencing with describing research methods, participants, and data collection tools as well as presenting the results align with the corresponding interpretations.

2.2 Research Methods

To examine the different NTS used by 2nd-year EFL learners, this study adopts a mixed-methods approach, combining both quantitative and qualitative instruments. Rooted in an exploratory and quasi-experimental research design, the study seeks to both investigate current NT behaviors and evaluate the effectiveness of strategy instruction.

Data were collected through semi-structured questionnaires distributed to a group of students, semi-structured interviews conducted with teachers, classroom observations of the same group, and pre- and post-tests. The use of triangulation allowed the researcher to gather in-depth information and diverse data on students' NT behavior, structure, and perspectives. Furthermore, this approach helped evaluate the effectiveness of teaching NTS and offered a variety of techniques that can support students in developing effective NT habits.

Additionally, the combination of these tools ensured that the data collected was not only varied but also reliable, offering a more holistic view of the learners' experiences. This methodological design aimed to cross-check findings from multiple sources to better understand the relationship between instruction, strategy use, and learning outcomes. The use of both student and teacher input helped reveal gaps between instruction and application, which is essential for addressing students' needs in academic skills development.

2.3 Participants

This study focuses primarily on 2nd-year EFL learners as the target population. The license degree consists of three levels: L1, L2, and L3. The choice of L2 learners was purposeful for several reasons. Unlike L1 students, who are still new to the university

context, L2 students are already familiar with the academic system and instructional methods. They are expected to have some foundational experience with NT, having been introduced to it in a first-year module called *"Study Skills."*

L2 learners were selected because they are at a transitional stage where NT habits are still being formed, unlike L3 learners who are presumed to be more experienced and already skilled in this area. Moreover, L2 level represents a critical stage in which learners begin to shift from passive reception to active processing of lecture material. At this point, they often become more conscious of their academic responsibilities and are more open to improving their study techniques. Their experience during the first year provides a useful baseline, while their current level allows for both the observation of existing habits and the introduction of strategies that may lead to measurable progress in their academic performance.

In addition to students, a group of EFL teachers participated in the study through semi-structured interviews. These teachers provided valuable insights into students' NT practices, the challenges they observe in classroom settings, and their perspectives on teaching strategies aimed at improving NT. Their contributions helped to contextualize the students' experiences and supported the triangulation of data by offering a pedagogical perspective on the research questions.

2.4 Research Instruments

Research tools are the heart of any research. Researchers can do nothing without them. These instruments are the foundation of any study that assist researchers in drawing conclusions. In order to answer the research questions effectively, the researcher utilized four distinct tools, namely a questionnaire, an interview, a pre- and post-test, and an observation. Since NT is a cognitive and a physical process, the tools focused on students' NT habits, skills, and strategies. Therefore, the research's instruments enabled reaching the intended objectives efficiently.

In addition, the use of varied instruments offered a more comprehensive understanding of how students engage in the NT process. While the questionnaire provided quantifiable data on learners' preferences and practices, the interviews offered in-depth insights into their perceptions and challenges. Observation helped track real-time classroom behavior, and the pre- and post-tests allowed the researcher to measure progress and the impact of strategy instruction. This diversity in tools ensured that both subjective and

objective aspects of NT were explored, contributing to the reliability and validity of the research findings.

2.4.1 Questionnaire

Due to its practicality and usefulness to gather data from a large number of participants efficiently, the questionnaire was selected as the primary data collection tool.

2.4.1.1 Description of the Questionnaire:

The researcher opted for a semi-structured questionnaire as it allowed for the collection of comprehensive data. The questionnaire consisted of fourteen questions divided into five sections, each addressing a specific aspect of the research's core theme.

The first section aimed to gather information about students' years of experience in learning English. The second section focused on current NT practices, exploring the participants' habits, approaches, frequency, and the types of information they considered worth noting.

The third section examined students' NT awareness, including their familiarity with NTS and any instruction they had received. The fourth section explored learners' perceptions of NT, including aspects such as its perceived usefulness, their beliefs about their current habits, and how they reviewed their notes. The final section addressed the challenges students faced while taking notes and included their suggestions for improving this activity.

The questionnaire was administered in the classroom, where clarifications were provided to support accurate and complete responses.

2.4.1.2 Questionnaire Analysis

The proper analysis of research results plays a crucial role in bridging the gap between theory and practice. In this regard, the analysis section serves as a vital component that helps the researcher verify or reject the proposed hypotheses.

As previously mentioned, the study employed a questionnaire composed of various questions, each designed to provide deeper insight into the topic under investigation. The researcher analyzed the participants' responses to interpret patterns, identify challenges, and draw meaningful conclusions related to NT practices and their effectiveness.

Section 1: General Information

Q1: How long have you been studying English?

Table 2: Experience of studying English

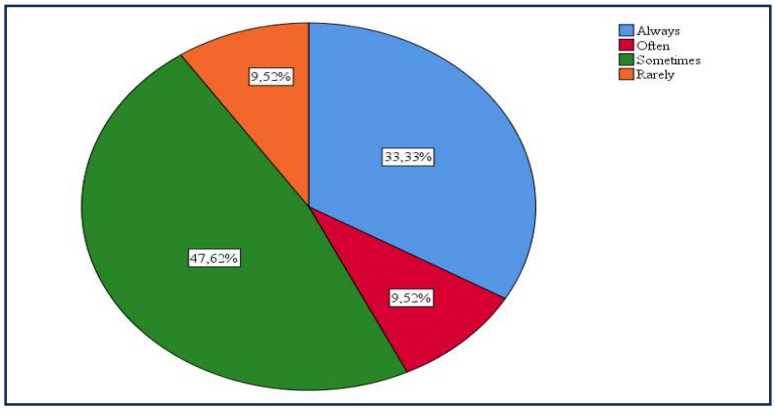
Years of experience	Less than 2 years	2–5 years	More than 5 years
Number of students	2	7	12

Percentage	9.52%	33.33%	57.15%

The data presented in the table indicate variations in students' experiences in learning English. Among the 21 students surveyed, 2 reported having studied English for less than two years, which suggests limited experience, particularly considering the fact that English has been integrated into the curriculum since Middle school. Meanwhile, 7 students stated they had been learning it for a period of 2 to 5 years. The remaining students, who form the majority, indicated that they had more than 5 years of experience. This suggests that a significant portion of the participants have had sustained exposure to English learning, which could positively influence their proficiency levels and confidence in using the language.

Section 2: Current Note-Taking Practices

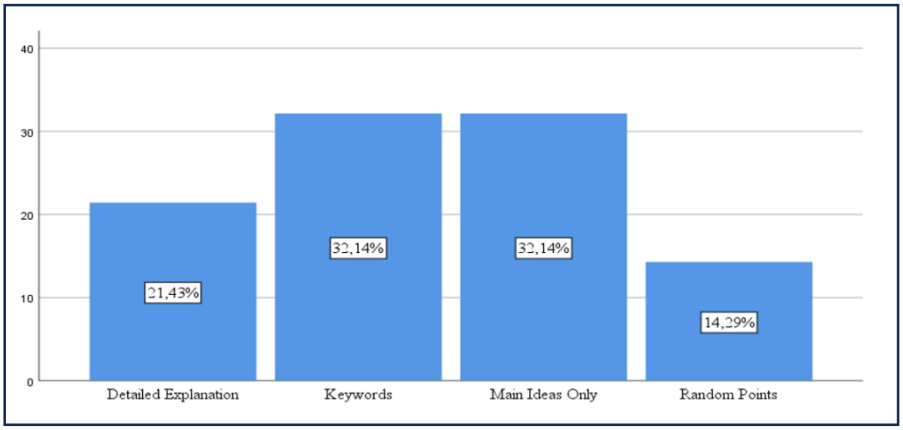
Q2: How often do you take notes during lectures?



Pie-chart 2.1: Students' NT habits

From the pie-chart above, NT habits vary among students during lectures. 33.33% of the respondents stated that they take notes regularly, indicating that NT is an established habit for them. Additionally, two students reported taking notes frequently, as it highlights that they valued this activity. Meanwhile, 10 out of 21 argued that they take notes occasionally which entails that the majority placed less importance to this practice. The rest admitted that they take notes rarely. Interestingly, no informant state never take notes during lectures, indicating that all learners engage in this process to some extent.

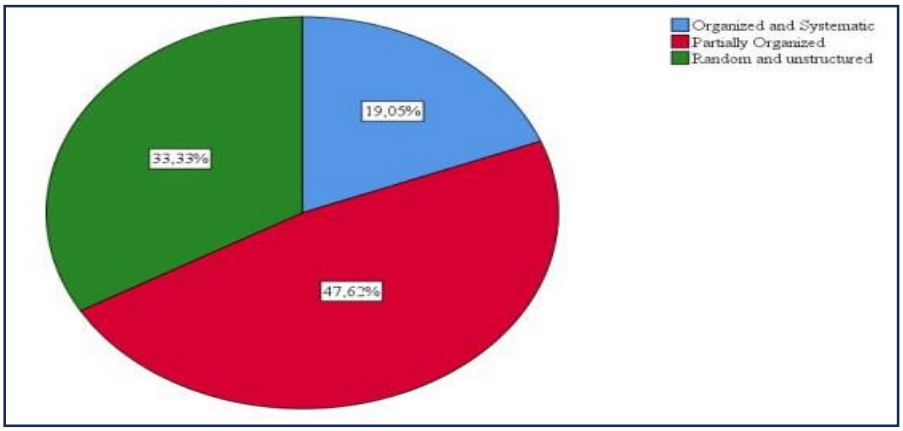
Q3: What do you usually note down during a lecture?



Bar-graph 2.1: Types of information noted during lectures

Based on the data presented in the above bar-chart, 9 students stated that they usually take notes on main ideas, suggesting their focus on essential parts of lecture content. Similarly, 9 informants reported noting keywords and examples, indicating that they concentrate on crucial points and any illustrations provided by the lecturer. In addition, 28.57% of the students indicated that they write down detailed explanations, reflecting a preference for capturing in-depth information. On the other hand, 4 learners argued that they take random points without a specific structure. This variation highlights differences in how students process during lectures.

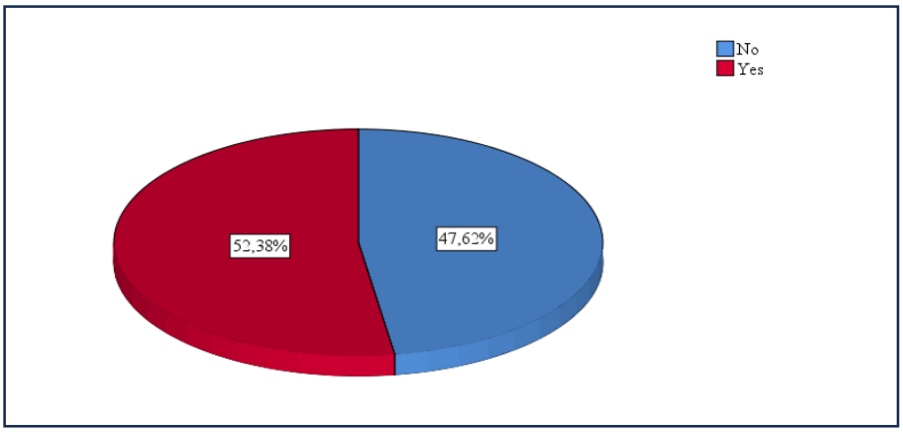
Q4: How would you describe your NT approach?



Pie-chart 2.2: Students' perceptions about their NT approach

According to the results shown in Pie-Chart 2.2, four students described their notes as well-structured, showing that they tend to organize information clearly. Half of the respondents reported that their notes are partially structured, which means they apply some organization but may not follow a consistent method. The remaining students said their notes are random and unstructured, which reflects a lack of effective note organization during lectures.

Q5: Do you take notes in all modules?

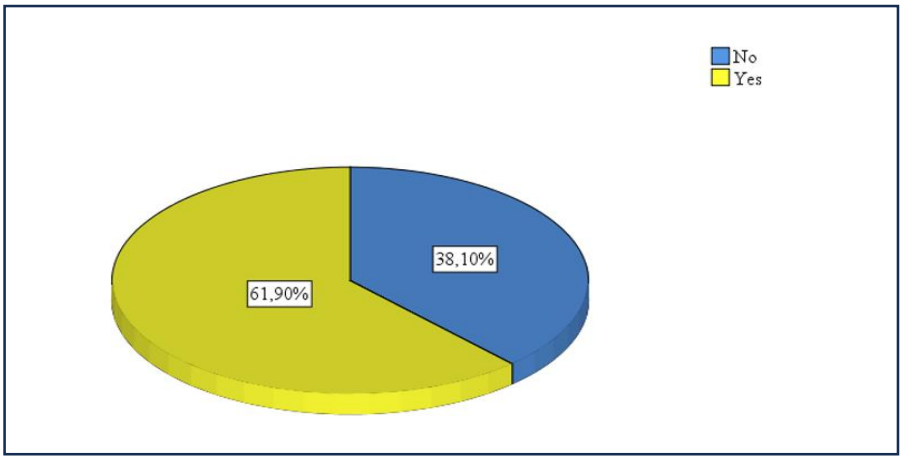


Pie-chart 2.3: Students' NT practices across modules

Based on the data presented in the above pie chart, Students take notes depending on the module itself. 11 respondents reported that they take notes in all modules with no exceptions, suggesting that they value the process of NT and a consistent approach. Conversely, the remaining 10 respondents stated their NT depends on the module. This may be due to the availability of lectures on Moodle platform, or printed handouts. A considerable number of students reported not taking notes in subjects such as Literature, Linguistics, Study Skills, and Written Expression. The primary reasons cited were the complexity and level of detail in these modules and challenges in understanding the material. However, a noteworthy insight emerged from two students who admitted that they find certain modules less interesting and did not take them seriously, which affected their motivation to take notes. These findings suggest that while external factors such as content difficulty and resource availability play a role, students' personal attitudes and engagement levels also significantly influence their NT habits.

Section 3: Awareness of Note-Taking Strategies

Q6: Are you familiar with any NTS?

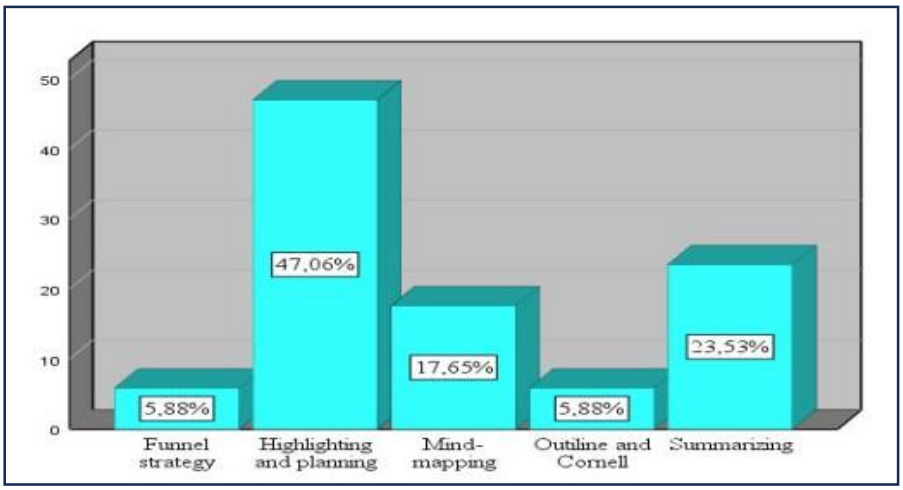


Pie-chart 2.4: Students' familiarity with NTS

The data presented in Pie-Chart 2.4 shows that 13 students reported being familiar with NTS, while 8 indicated they were not. This suggests that although a majority have some awareness of structured NT methods, a significant portion of the student population still lacks familiarity with these strategies.

Q7: If yes, which strategy do you use most often?

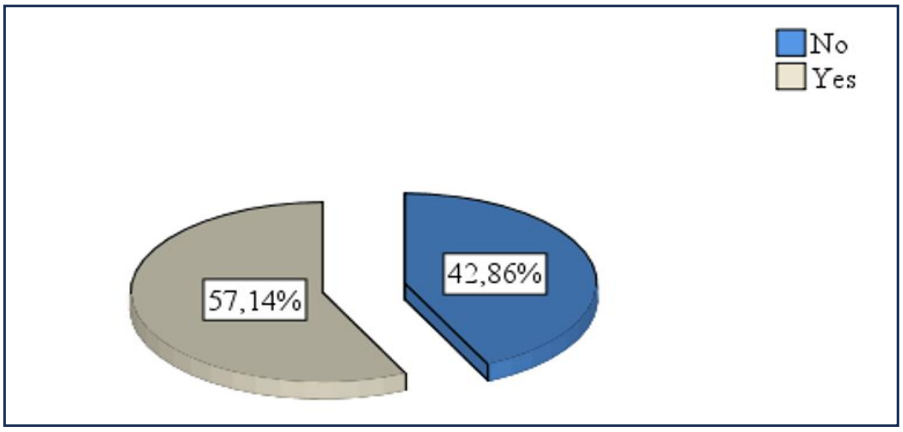
Students who argue their familiarity with NTS, demonstrated that by providing different techniques they utilized when taking notes. These techniques are presented in the following figure.



Bar-graph 2.2: Different NTS utilized by students

NTS employed by students are distinct. The researcher asked them to provide strategies they used while taking notes. The results, as illustrated in Bar-graph 2.4, indicate that highlighting and planning are the most used techniques. Other students rely on writing summaries. Notably, some students highlight using structured methods, such as mind-mapping, outlining, Cornell and the funnel strategies.

Q8: Have you ever been taught how to take effective notes?

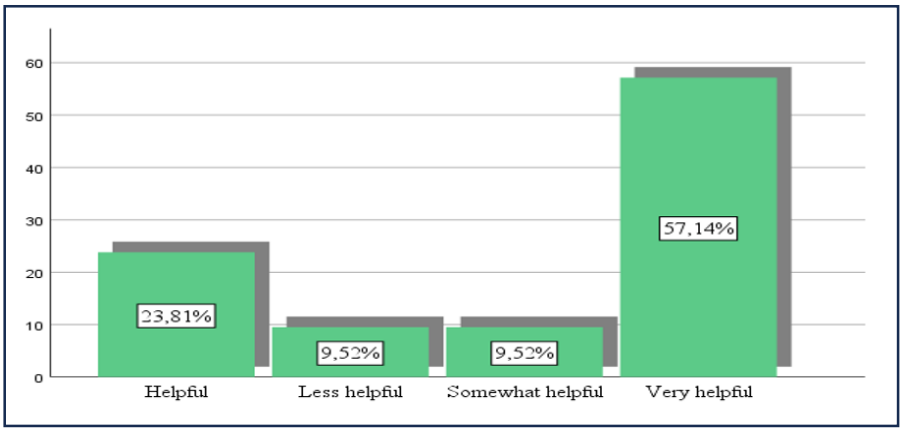


Pie-chart 2.5: Students' experience with NT

When asked whether they had ever been taught how to take effective notes, 12 students responded "yes," while 9 indicated that they had never received any formal instruction. This variation in instructional exposure may explain the gap in familiarity reported in Pie-chart 2.4, as well as inconsistencies in the application of NTS among students demonstrated in Bar-graph 2.2. Those who had not been taught likely rely on unstructured methods, while those who had received guidance demonstrated awareness of a range of strategies, from basic techniques such as highlighting to more structured approaches like the Cornell method.

Section 4: Perceptions of Note-Taking Effectiveness

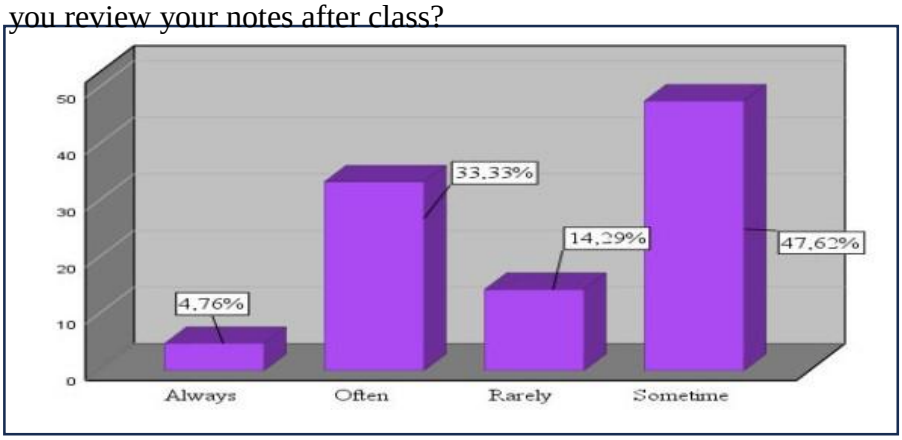
Q9: How helpful do you think NT is for your academic success?



Bar-graph 2.3: Usefulness of NT

Most of students (57.14%) perceived NT as a helpful strategy in the earning process. Additionally, five learners reported that it contributes positively to their learning outcomes. In contrast, two students stated that note-taking is only somewhat helpful, and another two indicated that it is less useful. These responses reflect a range of attitudes, with a small portion assigning limited value to the practice. Interestingly, no participants regarded NT as unhelpful practice.

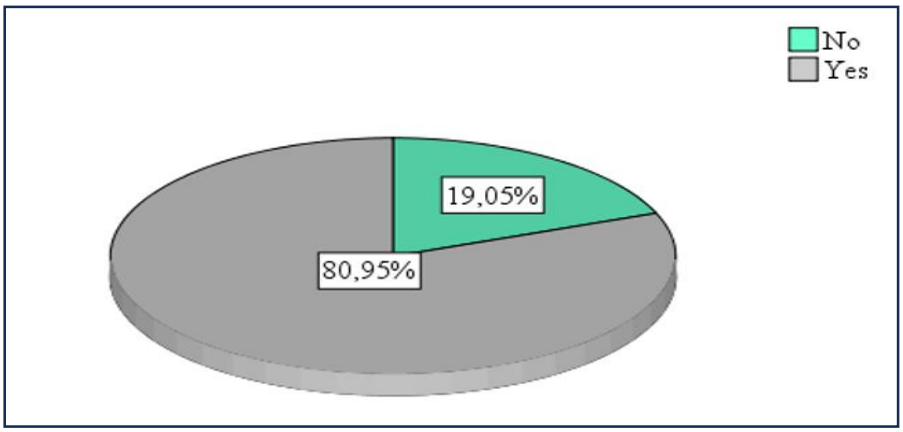
Q10: Do you review your notes after class?



Bar-graph 2.4: Reviewing notes after class

As illustrated in Bar-graph 2.4, only one student reported usually reviewing their notes after class, while seven respondents indicated that they do so frequently. The largest proportion of participants (47.62%) stated that they review their notes occasionally,
suggesting that this practice is often motivated by specific academic requirements, such as exam preparation or assignment completion. Additionally, three students reported rarely reviewing their notes. Notably, no participant claimed to never review their notes, indicating that all students engage in this activity to some extent.

Q11: Do you believe your current NT habits help improve your writing skills?

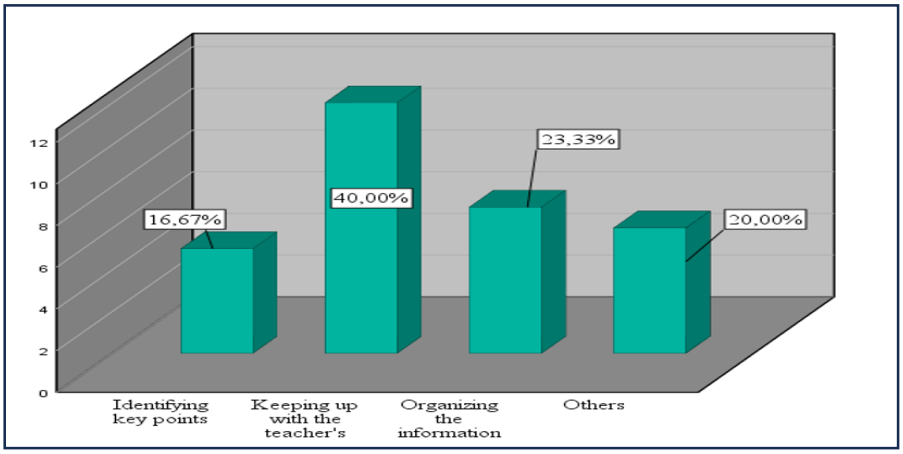


Pie-chart 2.6: Perceived habits' effectiveness

As shown in Pie-chart 2.6, the majority of students (80.95%) reported that their current NT habits positively contribute to the improvement of their writing skills. In contrast, four respondents indicated that their habits are less effective and do not significantly support the development of their written expression. This entails that most students are cognizant about the significance of NT in promoting their written composition skills.

Section 5: Challenges and Suggestions

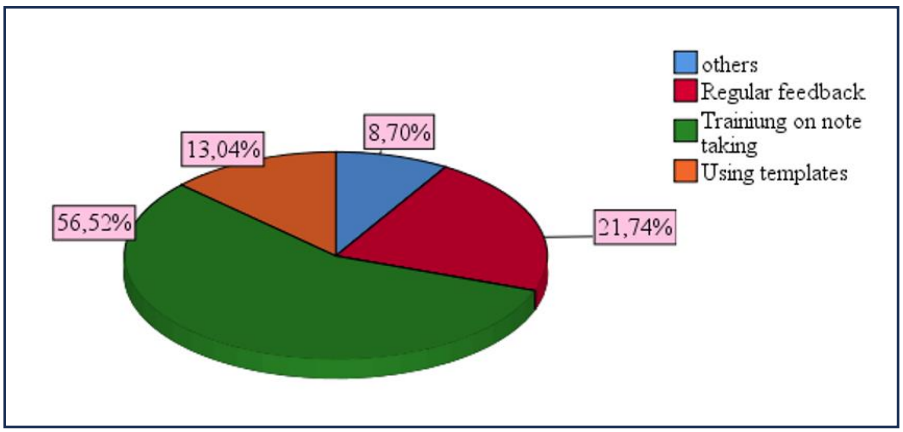
Q12: What challenges do you face while taking notes?



Bar-graph 2.5: Challenges while taking notes

The data presented in the above bar-graph reveal several hurdles encountered learners while taking notes. The majority of participants (57.14%) reported struggling to follow with teachers' explanations, particularly when lecturers speak too fast. Additionally, five participants stated that determining key points is difficult, suggesting that they struggle to distinguish essential ideas from less important details. Nine respondents found it challenging to take notes while simultaneously organizing the information, highlighting the complex nature of taking note. Furthermore, some students reported facing additional barriers. Bad memorization was one of the difficulties mentioned as they struggle to retain what the teacher says, which can be explained by the limited capacity of their working memory. Others found it hard to recall details, making it challenging to write comprehensive notes. Additionally, some participants admitted that multitasking; processing information while taking notes; is difficult for them. Furthermore, one student mentioned struggling to take notes in a noisy classroom, highlighting how external distractions can further hinder effective NT.

Q13: What strategies do you think could encourage you to take better notes?



Pie-chart 2.7: Strategies promoting NT

As shown on the pie-chart above, students identified several strategies that could help them take better notes. The majority of participants reported that receiving training in NT methods will enhance their NT skills. Additionally, three students viewed that using templates or tools would be a useful strategy, reflecting the idea that structured templates facilitate and organize the record of notes. Moreover, five participants proposed that receiving regular feedback from teachers would be beneficial. They highlighted that feedback helps them recognize what to alter, adjust, omit, also identifying their strengths and weaknesses in NT. Lastly, two respondents suggested an alternative approach: focusing entirely on the lecturer's explanation without distractions, writing continuously from the beginning to the

end, and maintaining concentration to grasp key points more effectively. These responses entail that students recognize the need for structured support, whether through training, tools, or guidance to enhance their NT skills.

Q14: In your opinion, what can be done to help students develop effective NT habits?

Students recommended various strategies to enhance NT efficiency, which can be categorized into learner-centered and teacher-driven approaches. From the learners' perspectives, they emphasized psychological, physical and mental aspects. From a psychological perspective, the participants reported that students should own a passion and purpose for learning, highlighting that they should be intrinsically motivated in order to take effective notes. From a cognitive perspective, the respondents argued that learners must be aware about the importance of NT. From a practical perspectives, the informants stated that learners should select a strategy and practice regularly in order to master it. In addition to all of the above, the participants suggested that students must pay a careful attention to key points accentuated by instructors, as these are crucial for exams. Moreover, they proposed that if learners fail to keep up with their mentors' explanations, they can use audio recordings.

Furthermore, students suggested several recommendations that teachers may adopt, among these are: teachers may create an engaging lecturers that encourage students to take notes, organize and revise them. Moreover, teachers are invited to provide students with structured instruction and practical training. Furthermore, educators are encouraged to allow students to use their digital devices to take notes, as it facilitates the recording of notes in smooth way.

By implementing these strategies, both learners and educators can contribute in fostering effective NT habits, eventually improving students' academic achievements.

2.4.1.3 Questionnaire Results interpretation

The results obtained from the student questionnaire provide a broad overview of NT habits, awareness of strategies, and perceived usefulness. The findings revealed varying degrees of engagement with NT. Approximately one-third of the students reported taking notes regularly during lectures, while others noted doing so occasionally or rarely. No participant reported completely avoiding the practice, which may indicate a general recognition of its academic significance.

In terms of content, most students focused on main ideas and keywords, suggesting a preference for condensed and essential information. A smaller group reported including

detailed explanations, which may reflect deeper engagement with the material. Regarding notes' organization, only a minority claimed their notes were well-structured and systematic. The majority acknowledged that their notes were either partially structured or entirely unstructured. This indicates a lack of effective NT techniques and may suggest limitations in planning and information organization strategies.

The data also showed that NT behavior varied depending on the module. While more than half of the students reported taking notes consistently across all modules, others indicated that their engagement depended on factors such as subject complexity, personal interest, or the availability of learning resources like Moodle handouts. Notably, subjects perceived as challenging, such as Literature and Linguistics, appeared to discourage NT due to difficulties in understanding or synthesizing the content.

With regard to awareness of NTS, more than half of the participants claimed familiarity with various methods. However, the majority relied on basic techniques such as summarizing and highlighting. Only a small number reported using structured approaches such as mind-mapping or the Cornell method. Students who had received prior training in NT were more likely to apply a broader range of strategies, suggesting that instruction can positively influence both awareness and application.

Although most students believed that NT supports academic performance, a few questioned its overall usefulness. This variation may be attributed to differences in study habits, preferred learning styles, or a limited understanding of how to use notes effectively. Additionally, the practice of reviewing notes after class was not common, with only a few participants engaging in this activity regularly. This limited review behavior may reduce the potential of NT to reinforce learning and improve retention.

Overall, the results suggest that while students generally value NT, there are evident gaps in strategy use, structural organization, and follow-up practices. These findings reinforce the need for increased awareness and training in effective NT methods to support academic achievement. When interpreted in light of the theoretical framework, it becomes clear that many students' practices are limited to surface-level cognitive processes, with minimal evidence of metacognitive planning, regulation, or reflection.

This may be attributed to the constraints of working memory, which supports the simultaneous activities of comprehension, selection, and transcription during NT (Baddeley, 1986; Bui and Myerson, 2014). Live lectures place high demands on students' cognitive resources, and the concurrent need to listen, process, and write often results in cognitive

overload, leading to fragmented or unstructured notes (Piolat et al., 2005; Vasile et al., 2011). Moreover, the lack of planned review practices and organized note structures points to a limited engagement with metacognitive strategies, such as goal-setting, self-monitoring, and outcome evaluation (Haghverdi et al., 2010; Phan, 2020). These findings align with the theoretical proposition that, without explicit instruction, learners may find it difficult to manage cognitive load effectively and to transform incoming information into lasting and retrievable knowledge (Kiewra, 1989; Slotte and Lonka, 1999).

2.4.2 Classroom Observations

The significance of classroom observation is widely acknowledged and requires no further justification. As, it provides valid and valuable insights. It enables the researcher to collect meticulous and direct data that other research tools may not offer.

2.4.2.1 Description of Classroom Observations

The researcher opted for a non-participant observation as a secondary research tool, conducted with the same group of L2 students who had completed the questionnaire. A total of seven sessions across different modules were observed.

During these sessions, the researcher carefully documented all relevant details in a notebook, recorded the lectures using a mobile device, and paid special attention to how students take notes. These observations provided deeper insights into students' real-time NT behaviors, complementing the questionnaire data.

2.4.2.2 Purpose of Use

The observation has been employed to gather data collected from direct classroom engagement. It served as a means for the researcher to monitor students' behavior during the sessions, paying close attention to their actions and level of engagement. In addition to observing their general conduct, the researcher also examined the students' notebooks to evaluate how they recorded information during lessons. This step was essential in assessing the role of NT in the learning process. Furthermore, the observation allowed the researcher to observe the delivery of instruction by teachers and gain insights into how the educational content was presented.

The researcher deemed it is appropriate to analyze students' NT habits in detail. This analysis helped identify any specific strategies the learners applied when taking notes, such as summarizing, outlining, or organizing ideas. The observation also aimed to determine whether these strategies were applied consistently or randomly. Additionally, attention was given to the teachers' practices to check whether educators emphasized NT in their teaching

methods. This dual focus on both students and teachers provided a comprehensive view of how NT was integrated into the classroom setting.

2.4.2.3 Analysis of Classroom Observation Results

The non-participant observation was conducted over several sessions across different modules enabling the researcher to summarize the key following observations:

a. Students' Behavior

During the sessions, students displayed varied behaviors regarding NT and engagement. Some students took notes throughout the entire session, while others listened without writing anything. A portion of students, however, appeared distracted either using their phones, chatting with peers, or daydreaming. Moreover, some students attended the sessions without bringing notebooks or paper for NT.

In sessions where the teacher used a data show for the lecture, some students focused on depicting images from the slides rather than engaging with the content.

b. Students' Engagement

Students also showed different levels of engagement during the sessions. Some students remained actively engaged by participating regularly, nodding in agreement, answering questions, and seeking clarification from the teacher. However, others stayed silent throughout the sessions, only responding when directly called upon by the teacher. These students showed no initiative to participate voluntarily.

c. Students' Notes

Upon examining students' notebooks after the sessions, the researcher noticed a variety of NT practices. Some students attempted to record verbatim notes, in other words, they tried to write everything the teacher said word-for-word, often without filtering or organizing the information. Others only wrote short and isolated sentences, lacking coherence or connection to the full explanation.

In terms of structure, the majority of students' notes were poorly organized and did not reflect the use of established NTS such as the Cornell Method, mapping, outlining, or charting. Furthermore, there were observable differences in the tools used for NT: while some students wrote in pencil and others with a single pen, only a few employed color-coding to highlight or categorize information.

d. Teachers' Role in NT

Across all observed sessions, teachers did not explicitly instruct students to take notes or emphasize the importance of NT. However, one notable exception occurred during a

session where a teacher actively encouraged students to use the mind-mapping or outlining techniques for a task. The teacher stressed the importance of NT and, when students asked for clarification, he responded:

"I have explained it many times... five times. If you were focusing and taking notes, you would understand." This classroom event highlights the potential impact of teachers' guidance in promoting effective NT habits.

2.4.2.4 Classroom Observations Results Interpretation

The classroom observation offered a direct and practical perspective on students' real-time NT behavior, bridging the gap between what they claim to do and what actually occurs in learning settings. The sessions revealed noticeable variation in students' engagement with NT depending on both the lesson content and the teacher's delivery method.

One of the key findings was that only a small number of students took notes actively and consistently across the observed sessions. Many students adopted a passive listening stance or disengaged completely, particularly when the teacher relied on PowerPoint slides or referred to external resources such as Moodle. This behavior supports earlier findings from questionnaire which indicated that the availability of material often discourages students from taking personal notes during lessons.

Among those students who did take notes, most relied on unstructured methods. The observation revealed that many learners attempted to transcribe information verbatim, recording large portions of speech without processing or organizing it meaningfully. This practice reflects a lack of familiarity with effective NTS and may also be linked to cognitive overload, particularly when students must simultaneously listen, comprehend, and write. According to Piolat et al. (2005), NT is a cognitively demanding task that requires coordination between listening and writing, which may explain why some students struggle when teachers speak quickly or cover dense content.

There was limited evidence of structured NT approaches such as outlining, mind-mapping, or summarizing. Furthermore, only a few students used techniques such as color coding to emphasize important points. This inconsistency in methods suggests that students may not be trained on how to take notes effectively, which is a critical academic skill. The lack of coherence in students' notes also points to an absence of metacognitive regulation, which is essential for selecting and organizing information.

Another notable observation was the impact of teacher support. When teachers emphasized the importance of NT, paused to highlight key ideas, or encouraged the use of specific techniques, students became more responsive and engaged in NT. For instance, in one session, a teacher encouraged students to use mind maps and expressed frustration when students did not understand due to their lack of attention and NT. This suggests that teacher guidance plays an important role in promoting effective NT practices, especially when students are provided with time and cues to process information.

The subject matter also influenced students' NT behaviors. During writing-focused sessions, students were more inclined to note examples and procedural steps. In contrast, during theoretical lectures, particularly in subjects such as Literature, students engaged less with NT. This may be due to the abstract nature of the content and the perceived difficulty in translating complex information into simplified notes.

In summary, the classroom observation findings confirm that although students may recognize the value of NT, their actual classroom practices are often inconsistent and unstructured. These findings emphasize the importance of integrating NT instruction into regular teaching practice. By explicitly modeling effective techniques and encouraging reflective engagement with course content, educators can help students develop the academic and cognitive skills necessary to benefit from classroom learning.

2.4.3 Interview

The interview is the third tool used by the researcher to gather teachers' insights regarding NT as a learning process. It aimed to explore their perspectives on students' NT practices and to obtain their recommendations for enhancing the use of NT in the classroom.

2.4.3.1 Description of the Interview

A semi-structured interview was conducted with five EFL teachers and included both open- and closed-ended questions. Four of the interviews were recorded using a mobile phone, while one was transcribed manually due to the participant's refusal to be recorded. The purpose of the interview was to investigate teachers' experiences with NT, their views on students' NTS, the challenges encountered, and suggestions for promoting NT in the learning environment.

2.4.3.2 Interview Data Analysis

To ensure the collection of rich and insightful data, the responses were carefully analyzed. This analysis allowed the researcher to identify common themes and patterns across the participants' answers, such as shared observations, concerns, and practical

recommendations. It also helped reinforce the validity of the findings by comparing teachers' input with students' practices observed during the sessions and reported in the questionnaire. This triangulation contributed to a deeper understanding of the role and impact of NT in EFL classrooms.

Q1: How many years of experience do you have in teaching EFL students?

Teachers' experience in educating EFL learners varies from one to another. One teacher admitted having 23 years of experience, highlighting his/her extensive background in EFL instruction. Two teachers reported that they have around 13 years of teaching experience. However, one of them emphasized that his/her experience spans both university-level and private schools. The remaining two educators stated that they have 8 years of experience instructing students at the level of university, positioning them as relatively novice teachers compared to the other interviewees.

Q2: From your observation, how important is NT for EFL students' academic success, (particularly in writing skills)?

All interviewees agreed that NT is crucial activity in the learning process, as it enhances students' engagement and autonomy and enables them to form their own notes "Note making". They emphasized that handouts and posted lectures may not cover the necessary information. One teacher reported that only highly-achieving students tend to take notes, meaning that this category is aware about its significance and value this practice. Interestingly, two teachers highlighted NT's importance. One stated:" *We can't learn without taking notes.*" Another accentuated: "*I think, I think NT is very important in learning career of students - sometimes even for teachers - to observe to,,,to see how students are reacting,,,uhh,,, interacting with our lectures*". Moreover, an educator stated that NT helps learners understand, follow up and concentrate more during lectures. This underscores that NT is not only beneficial but also mandatory for academic success.

Q3: Do you think EFL students are familiar with effective NTS? Why or why not?

Concerning students' familiarity with NTS, three participants reported that students are not familiar with effective NT. They supported this claim by highlighting learners' reluctance to take notes, inability to employ NTS, as well as difficulty in structuring their notes properly. Two added that though students receive instruction on NT in their first year through a module called '*Study Skills',* they pointed out that many perceive this instruction as something to memorize for exams rather than a skill to develop for their learning journey. In contrast, two participants emphasized that students are familiar with NT and recognize its

effectiveness, since they are introduced to it in their first year. One even mentioned that s/he had taught learners different strategies, such as drawing, circling, annotating, and highlighting. These diverging perspectives highlight the diversity in teachers' views; some believe that students are aware of and capable of using NTS, while others argue that learners lack the necessary familiarity and skills.

Q4: Have you ever taught or guided your students on how to take effective notes? If yes, what strategies did you use?

Most of teachers argued that they do not explicitly instruct students in NTS, since it is not part of the curriculum. They explained that they are required to focus on content delivery within strict time constraints. However, they admitted that they always encourage their learners to take notes through reminders and insistence. On the other hand, one instructor reported that s/he devoted a unit for instructing NT within the "Study Skills" module, demonstrating how to take notes from audio recordings and scripts, using both fictional and non-fictional texts for analysis. Unexpectedly, another educator argued that s/he introduced NTS at the beginning of the semester, focusing on mind-mapping and outlining techniques. S/he encouraged students to apply these methods in essays writing activities. This sheds light on how important is NT and the efforts made by teachers to incite this process among learners to become good note takers.

Q5: What challenges do you think EFL students face when taking notes during lectures?

There are several hurdles students face when taking notes, including lack of motivation (intrinsic motivation), reluctance and laziness, which prevent them from taking effective notes. Additionally, many students tend to over rely on available lectures on Moodle or handouts instead of actively taking notes. Other barriers reported by teachers is the pace of instruction, as some students struggle to keep up, particularly with educators who explain content too quickly. Moreover, one teacher highlighted that the teaching approach itself can pose difficulties for students. S/he explained that the way teachers present their lectures affect students ability to take notes effectively. For example, using PowerPoint presentation where key points are highlighted and leaving a room for students to take notes through explanations and pauses differs from lectures that present whole blocs of information or are solely read aloud from the handouts. The instructor added that even educators' pronunciation, fluency, and overall proficiency in instruction play a significant role either in facilitating or impeding the learners' ability to take notes. Considering these

obstacles, it is essential to find out solutions that help students overcome these hurdles and to develop effective NT skills.

Q6: What suggestions or strategies would you recommend to help students improve their NT habits?

Educators recommended plenty of strategies to help students develop effective NT habits. Three interviewees emphasized the importance of practicing NT in a formal instruction, stating that students should receive training on NTS and understand its significance. One interviewee suggested that teachers may dedicate 2 to 3 sessions specifically to instruct students on NT even if it is not included in the syllabus. In addition, two participants highlighted the need to encourage students to take notes during sessions, through providing continuous reminding and motivation, such as awarding extra points to those who take well-structured notes using colors, highlighters and organization techniques. Regarding lecture presentation, one participant suggested to leave some room for NT while presenting. Another educator advocated for the use of codes (cues) with students where these codes indicate essential points should be noted. Furthermore, one teacher stressed that teachers are invited to consider pace while explaining content, ensuring that their delivery is clear and easy for learners to follow and take notes. Another teacher shared a group-based strategy, where students were divided into groups, assigned to read different literature and NT habits. Concerning the use of Moodle platform, three instructors proposed solutions to reduce students' reliance on uploaded lecture materials. They suggested either cutting off online posting of lectures in order to press students to take notes, post 50% of the lecture and teach 50% so the students take notes or leaving this platform to post big titles (headings) of lectures, articles and books and activities so that students are obliged to take notes.

2.4.3.3 Interview Results Interpretation

The interview offered valuable perspectives from teachers regarding their observations and beliefs about students' NT practices and how these relate to academic performance. A dominant theme that emerged is the acknowledged importance of NT as a foundational learning strategy. Teachers consistently emphasized that NT enhances comprehension, retention, and engagement with content, especially in writing-focused subjects.

Despite this, most interviewees observed that many students lack proper NT skills. Teachers expressed concern that students either take notes randomly or rely excessively on pre-distributed materials like handouts or uploaded Moodle lectures. This dependency

suggests a reduced sense of responsibility and effort in actively engaging with content, potentially affecting students' ability to internalize and synthesize information. One teacher noted that when students don't take notes themselves, they often fail to develop ownership over the material, resulting in superficial understanding.

Teachers also noted a clear distinction between students who take structured notes and those who do not. The former group tends to be more organized, better prepared for exams, and demonstrates higher writing performance. In contrast, students who neglect NT are more likely to produce disjointed or underdeveloped written work. This observation supports the view that NT not only supports memory but also improves logical flow and coherence in writing.

Furthermore, while most teachers agreed on the importance of NT, they also admitted that they rarely devote time to explicitly teaching NT methods. Some considered it a skill students should have developed earlier in their academic journey. Others acknowledged the need to integrate NT instruction into their own teaching practice, particularly through modeling techniques or guiding students in summarizing content.

A few teachers proposed practical strategies for promoting effective NT. These included presenting content in way that invites students to take notes, providing outlines that they can build upon during lessons, and incorporating note-based activities like summarization or peer teaching. Moreover, there was an expressed belief that teaching NT as part of academic skill development could foster more independent learners.

In essence, the interview findings reveal a gap between teachers' expectations and students' current practices. While NT is universally regarded as a critical academic skill, its actual implementation among students remains inconsistent and often underdeveloped. This highlights the need for greater pedagogical emphasis on NT instruction and more strategic encouragement from educators.

2.4.4 Test

The test was the last tool used by the researcher to gauge students' performance and assess the effectiveness of instructing NTS. This phase aimed to compare two groups of students: an experimental group who received NT instruction, and a control group who did not receive any training. The purpose was to identify whether explicit instruction in NTS could lead to improved performance. Furthermore, the results of the experimental group were compared before and after the intervention to track individual progress and measure the impact of the training itself.

2.4.4.1 Description of the Test

The test was conducted with a group of students divided into experimental and control groups. The experimental group received instruction on Mind-mapping as a NTS, while the control group received no such training. The aim was to assess how structured NT instruction could influence students' ability to take notes and comprehend information.

During the pre-test, students were asked to listen to a passage and take notes freely, without being instructed in any particular method. Their notes were later examined. After listening, they were given a set of comprehension questions to answer based on the passage. Students were then allowed a second listening to help finalize their responses.

In the post-test, the same procedure was followed, but with one key difference: the experimental group was asked to apply the mind-mapping strategy they had been taught during the training sessions. They listened to the passage, took notes using the mind-mapping technique, answered a set of questions, and were given a second chance to listen to the passage before submitting their final answers. This structure allowed the researcher to assess the quality of notes taken and the comprehension outcomes, thus evaluating the effectiveness of the instructed NTS.

2.4.4.2 Test Analysis

Table 2.2: Descriptive Statistics for Pre and Post-test Scores (Experimental Group)

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Pre-test Score	14,1500	10	3,20633	1,01393
	Post-test Score	13,9000	10	2,86550	,90615

The descriptive statistics show that the mean score of the experimental group slightly decreased from 14.15 (pre-test) to 13.90 (post-test). Although this change is minimal, it suggests that the performance of the students did not improve after receiving instruction in NTS. The standard deviations (SD = 3.21 for pre-test and SD = 2.87 for post-test) show a moderate spread in scores, indicating that student performance varied to some extent but became slightly more consistent in the post-test.

Table 2.3: Correlation Between Pre and Post-test Scores (Experimental Group)

		N	Correlation	Sig.
Pair 1	Pre-test Score & Post-test Score	10	,189	,601

The correlation between the pre-test and post-test scores is r = 0.189, which represents a very weak positive relationship. This means that students who performed well in the pre-test did not necessarily perform better in the post-test. Furthermore, the p-value (p = 0.601) is much

greater than 0.05, which means that this relationship is not statistically significant. Therefore, it cannot be concluded that there is any meaningful link between students' performance before and after the NT instruction.

Table 2.4: Paired Samples T-Test Results Comparing Pre and post-test Scores for experimental group

		Paired Differences							
					95% Confidence Interval of the Difference				
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper	T	Df	Sig. (2-tailed)
Pair 1	Pre-test Score - Post-test Score	,25000	3,87478	1,22531	-2,52185	3,02185	,204	9	,843

The paired samples t-test was used to compare the mean scores of the same group of students before and after the intervention. The test result was t (9) = 0.204, with a p-value of 0.843**,** which is far above the standard significance level of 0.05. This means that the difference between the pre-test (M = 14.15, SD = 3.21) and the post-test (M = 13.90, SD = 2.87) was not statistically significant. In other words, the instruction on NTS did not lead to any measurable improvement in the students' scores. However, it is important to note that the small sample size may have limited the ability of the test to detect a significant effect.

Table 2.5: Descriptive Statistics of Post-Test Scores for Control and Experimental Groups

	Group Type	N	Mean	Std. Deviation	Std. Error Mean
Post-test Score	Control	11	11,8182	2,27236	,68514
	Experimental	10	13,9000	2,86550	,90615

Table 2.5 presents the descriptive statistics of post-test scores for both the control and experimental groups. The experimental group achieved a higher mean score (M = 13.90, SD = 2.86) compared to the control group (M = 11.82, SD = 2.27), indicating a numerical difference in favor of the experimental group. Although the descriptive data suggest that the experimental group outperformed the control group on average, further inferential analysis (as presented in Table 2.6) is necessary to determine whether this difference is statistically significant.

Table 2.6: Independent Samples T-Test results Comparing Control and Experimental Groups on Post-test Scores

Levene's Test for Equality of Variances	t-test for Equality of Means

		F	Sig.	T	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Post-test Score	Equal variances assumed	,330	,572	-1,854	19	,079	-2,08182	1,12311	-4,43251	,26887
	Equal variances not assumed			-1,833	17,179	,084	-2,08182	1,13602	-4,47670	,31307

Table 2.6 presents the results of an independent samples t-test conducted to compare the post-test scores of the control and experimental groups. The experimental group (M = 13.90, SD = 2.86) obtained a higher mean score than the control group (M = 11.82, SD = 2.27). The t-test yielded a t-value of 1.854 and a p-value of 0.079. As the p-value exceeds the conventional significance level of 0.05, the difference between the two groups is not statistically significant. Therefore, it cannot be concluded that the NT instruction had a significant effect on students' performance.

The results obtained from both paired and independent samples t-tests provide insights into the impact of NT instruction. The next section will interpret and discuss these findings more critically.

2.4.4.3 Test Results Interpretation

The primary aim of this study was to examine the effectiveness of NT instruction on EFL learners' academic performance, specifically through comparing pre and post-test scores between an experimental group and a control group.

The results from the paired samples t-test for the experimental group revealed that the mean score slightly decreased from 14.15 in the pre-test to 13.90 in the post-test. However, this difference was not statistically significant (p = 0.843). The correlation between the two tests was weak and non-significant, indicating that the scores did not follow a strong pattern of improvement. This may suggest that the short-term instruction provided was not sufficient to bring about immediate improvement in test performance or that learners may require more time and practice to apply NTS effectively.

On the other hand, when comparing the post-test results of the control and experimental groups, the independent samples t-test indicated that the experimental group achieved a higher mean score (M = 13.90) compared to the control group (M = 11.82). Although the difference was not statistically significant (p = 0.079), the small margin could

hint at the potential benefit of NT instruction, especially if applied over a longer period or in a more intensive manner.

Overall, while the statistical findings did not confirm a significant impact of the instruction, the trend observed supports the possibility that guided NT may contribute positively to student achievement. However, the present study also highlights the challenges of measuring the immediate impact of such instructional interventions, particularly within a short timeframe and with small sample sizes.

2.5 General Interpretation of the Results

To investigate the effectiveness of NTS in fostering EFL learners' academic achievement, the researcher employed four tools: a questionnaire, an observational practice, a teacher interview, and test. The classroom observation served to monitor students' NT behaviors and structure, as well as the teachers' involvement in guiding this process. The results revealed that students' notes were largely unstructured, supporting the initial hypothesis that learners take notes in a random and disorganized manner. This finding aligns with Çibik and İpek (2024), who argue that students often struggle to follow lessons while taking notes simultaneously, which reflects their lack of structured NT skills.

Following the identification of this issue, the researcher hypothesized that students who received NT instruction would outperform those who did not. However, the test results did not significantly support this hypothesis. Although the experimental group achieved a slightly higher mean in post-test scores compared to the control group, the improvement was not statistically significant. This outcome may be attributed to factors such as the limited sample size and the short duration of the instructional period. Unlike this study, previous research by Hoadjli and Bouguesba (2021) and Chang and Ku (2015) demonstrated that learners who were explicitly taught NTS outperformed their peers. Similarly, Almaagbh (2020) found a strong correlation between the use of strategic NT and enhanced academic performance among EFL learners in Jordan. Al-Quraan and Abdelrahman (2025) also observed improved listening comprehension in students who received targeted instruction in NT.

Additionally, the researcher examined the potential benefits of offering formal training in NT. This hypothesis was tested by analyzing suggestions and feedback gathered from both the questionnaires and the interviews. The findings highlighted that formal training in NTS could effectively enhance learners' performance and raise their awareness of its importance. This conclusion is consistent with the findings of Nagep (2022), who

studied the impact of five NTS (Sentence, Outlining, Cornell, Charting, and Mapping) and found that all significantly improved students' listening comprehension and were proved to be practical and beneficial. Similarly, Aljuhani (2023) confirmed that integrating NTS into EFL instruction had a considerable positive effect on learners' listening abilities, emphasizing the need to embed such strategies in language education.

In sum, while the instruction did not yield statistically significant results, the overall findings underscore the importance of structured NT and the need for formal training to enhance EFL learners' academic outcomes.

2.6 Conclusion

This chapter explored the practical dimension of the study and was divided into two main parts. The first addressed the research methodology, data collection tools, and the targeted sample. The second part focused on presenting, analyzing, and interpreting the data obtained from participants. Overall, the chapter provided rich insights into students' NT behaviors and deepened the understanding of their habits, challenges, and overall skills. It also confirmed some of the study's hypotheses while disconfirming others, reflecting a nuanced outcome influenced by contextual and procedural variables.

These findings highlight a pressing need to shift from passive learning to more strategic, skill-based approaches. By equipping EFL learners with structured NTS, educators can foster not only academic improvement but also greater learner autonomy and engagement. Future efforts should prioritize long-term, integrated training in NT as a vital component of language learning, turning a simple academic habit into a powerful learning tool.

Building on these insights, the following chapter outlines practical suggestions and pedagogical recommendations to enhance note-taking practices among EFL learners. These proposals are grounded in the study's findings and aim to support both educators and learners in improving academic performance through structured strategy

CHAPTER THREE

Enhancing Note-Taking Practices: Recommendations and Suggestions

3.1 Introduction

Based on the findings presented in both chapters, it has been established that NT promotes academic performance. However, it is worth noting that students undervalue NT, do not know how to take structure notes and lack efficient NT skills.

This chapter therefore is dedicated to provide practical suggestions and recommendation for both learners and educators to promote the process of NT. It also sheds light on several limitations that encountered this research.

3.2 Teaching Practices to Promote NT

NT is an essential practice in the learning process. Its effectiveness in promoting students achievements is undoubtedly confirmed. Though, students may not perceive its importance or require assistance to take structured and efficient notes. Thus, teachers' intervention plays a pivotal role in promoting students NTS, raise their awareness and guide them to be good note takers. In this regard, teachers are encouraged to provide explicit training in NT and emphasize its value through the implementation of targeted strategies that motivate and support students.

3.2.1 Raising Students' Awareness

Many students engage in NT without knowing its significance on the academic achievements, and mainly how it should be effectively done. Researches indicate that students frequently overlook the value of NT as a tool for enhancing learning. Raising awareness in education has two forms, either formal through content instruction included in curricula or informal through workshops and presentations (Sayers, 2006). Therefore, instructors can play a crucial role in promoting learners' NT and teach them about its features through organizing study days and workshops.

3.2.1.1 Study Days

Awareness days show a significant impact in making individuals more cognizant (Rhode, 2023). Organizing study days where the significance of NT is highlighted will enlighten students about how NT is crucial. These events should involve holistic presentations, interactive discussions and activities that contribute in promoting learners NT practices. Designing an effective study day framework for NT based on previous insights, leads to propose the following one focused on enhancing NT skills as follows:

a. Introduction to NT importance: Present research findings on how effective NT contributes to academic success.

b. Training on NT methods: Introduce various NTS, such as the Cornell Method, outlining, and mapping.
c. Interactive practice sessions: Engage students in exercises where they apply these methods to sample lectures or reading materials.
d. Peer review and feedback: Facilitate sessions where students share their notes and provide constructive feedback to each other.
e. Reflection, questions and answers: Encourage students to reflect on their learning and address any questions or challenges they encountered.

Implementing such a structured study day can draw attention to the significance of NT and equip learners with practical skills to enhance their academic performance.

3.2.1.2. Workshops

While not labeled as '*Study Days*', workshops share the common goal of dedicating time to skill enhancement. Its intervention has been studied for their effectiveness in improving academic skills, including NT. Sufi et al. (2018) outline ten rules for measuring the impact of workshops, emphasizing their role in fostering effective learning environments. Such events are highlighted as an effective mechanisms to gather communities around specific topics, thus, facilitating the exchange of ideas and collaborative learning. In this regard, Akintunde (2013) emphasized the importance of training students in NT skills through organized workshops. She highlighted that such interventions are vital for academic excellence in tertiary institutions. Similarly, Huppenkothen et al. (2017) presented the concept of '*Hack Weeks'* as a model for data science education and collaboration. These events combine tutorials, peer training, and project work, demonstrating that such workshop formats can effectively foster collaboration.

To raise awareness of effective NTS and provide students with opportunities to practice and refine them in real time, teachers are invited to use the following five-day workshop framework is adapted from the Hack Week model (Huppenkothen et al., 2017), and enriched by pedagogical insights from Akintunde (2013) as well as evaluation strategies outlined by Sufi et al. (2018).

Day 1: Awareness & Exploration

Theme: *Why NT Matters*

a- Talks & mini-lectures: Guest speakers (teachers, high-achieving students, or researchers) discuss how NT supports memory, writing skills, and academic performance.

b- Storytelling session: Real student experiences or case studies highlighting the impact of effective NT.

c- Workshop: Introduction to various NT methods (e.g., Cornell, mapping, outlining), including demonstrations of digital tools like OneNote or Notion.

Day 2: Skill-Building & Training

Theme: *Mastering Methods*

a- Breakout sessions: Students choose a NTS to explore in depth.

b- Simulated lectures/readings: Participants apply the chosen method in real-time, followed by guided feedback.

c- Peer review: Students exchange and evaluate each other's notes based on clarity, organization, and completeness.

Day 3: Challenge & Application

Theme: *Solve a Real Problem Using Notes*

a- Hack challenge: Groups use NTS to tackle academic tasks, such as summarizing an article, preparing a presentation, or outlining an essay.

b- Reflection session: Students assess the usefulness of their chosen method and share lessons learned.

Day 4: Creation & Innovation

Theme: *Design Your Own System*

a- Creative task: Students develop their own hybrid NT model tailored to their learning preferences or academic fields.

b- Tech integration: Participants experiment with tools like Notion, Google Keep, or Obsidian to digitize and enhance their systems.

Day 5: Showcase & Feedback

Theme: *Present and Reflect*

a- Presentations: Each group presents their experiences, outcomes, and recommendations.

b- Feedback panel: Educators and peers provide constructive feedback.

c- Final reflection: Participants share how their perceptions and habits about NT have evolved. Surveys also can be used to measure awareness, skill confidence and future intentions.

This intensive and interactive format not only promotes awareness of effective NT practices but also empowers students to apply, evaluate, and personalize strategies that enhance their academic performance.

3.2.2 Storytelling

Storytelling is sharing personal and real-life experiences that serves as a powerful pedagogical strategy to foster emotional engagement, deepen reflection, and make abstract learning strategies like NT more relatable and memorable. By presenting stories of successful learners and professionals who improved their academic or professional outcomes through effective NT, students are more likely to see its relevance and adopt the practice themselves.

Alterio and McDrury (2003) emphasize that storytelling encourages reflective learning in higher education, enabling learners to internalize strategies such as NT by connecting them to meaningful personal contexts. Recent research supports this approach in digital and academic contexts. Jiang et al. (2024) used storytelling supported by large language models to teach complex legal concepts, concluding that narrative delivery significantly enhanced comprehension and memory retention. In a more collaborative context, Salomaa and Lehtinen (2023) examined public NT on digital platforms and found that when NT is embedded within real-world narratives, it promotes shared understanding and increased learner motivation.

A useful framework to adopt is the "Story-Reflect-Apply" (SRA) Model proposed by Alterio and McDrury (2003). This model guides learners through:

a- Story: Listening to or telling real NT experiences.

b- Reflect: Discussing and analyzing what made those stories impactful.

c- Apply: Encouraging students to implement effective strategies from the stories into their own practice.

In a classroom instruction, this model can be used to structure a storytelling session where students hear peers or experts share NT journeys, reflect in groups on key takeaways, and immediately apply one strategy to a mini lecture or reading.

3.2.3 Model Effective NT

Many students engage in NT without knowing how to do it effectively. Therefore, educators can play a crucial role in demonstrating not just *what* to write, but *how* to think during the NT process. Cognitive modeling is a pedagogical approach that involves making mental strategies and decision-making processes visible to learners. In the context of NT,

this means that instructors verbalize their reasoning while identifying key points, summarizing ideas, and organizing information. This approach helps students move from passive transcription to active engagement with content by revealing the cognitive processes that underpin effective NT.

Similarly, Thongwichit and Buripakdi (2021) apply this approach in an ESP context, where instructors model how to evaluate and synthesize key ideas during academic reading tasks. Their findings indicate that students become more strategic, confident, and intentional in organizing content after observing structured demonstrations.

Inspired by Thongwichit and Buripakdi (2021), educators can adopt a three-stage cognitive modeling framework:

a- Think-aloud modeling: The instructor demonstrates NT while verbalizing thought processes.

b- Guided practice: Students co-construct notes with the instructor's guidance and feedback.

c- Independent performance: Students apply the strategy individually, followed by reflective discussion.

This structured approach offers students progressive scaffolding, empowering them to move from observation to independent mastery of NT techniques.

3.2.3 Train Students Effectively

Many students lack the foundational skills required for effective NT. Their notes are often disorganized, incomplete, or lack coherence, indicating a need for structured and practical training. Therefore, educators are strongly encouraged to move beyond theoretical explanations and provide learners with explicit, hands-on instruction that guides them in how to develop and apply NTS.

Drawing on pedagogical frameworks from previous studies (Rahmani & Sadeghi, 2011; Thongwichit & Buripakdi, 2021), teachers are invited to adopt the following training model to help students develop their NT competence in a structured and practical manner:

a- Introduce the strategy: Briefly explain the NT technique (e.g., Cornell Method, Mapping) and its purpose.

b- Instructor demonstration: Model the strategy using a sample text or short lecture, while verbalizing your thinking process (e.g., "*I'll underline this because it's the main idea…*").

c- Guided student practice: Let students apply the strategy in pairs or small groups using a short video, article, or lecture segment. Provide support as they practice.

d- Peer comparison and feedback: Encourage students to compare their notes, identify differences, and discuss what was effective or missed.

e- Revision and reflection: Ask learners to revise their notes and reflect (either verbally or in writing) on what worked and what they would do differently next time.

f- Independent application: Provide opportunities to apply the strategy independently during regular lessons or assessments, reinforcing long-term retention.

This model offers a systematic and student-centered approach that transforms NT from a passive habit into an active learning strategy. By giving students multiple opportunities to observe, practice, evaluate, and improve, teachers help foster lifelong academic skills essential for success across disciplines

3.2.4 Promoting Students' Motivation to Enhance Engagement in NT

Motivating students to engage in effective NT is essential for their academic success. While intrinsic motivation plays a crucial long-term role, extrinsic motivation can serve as a catalyst to initially drive student effort and attention. Teachers, therefore, are invited to adopt purposeful strategies to foster such motivation and guide students toward sustained engagement in NT practices.

Recent studies have explored how teacher-led strategies can stimulate students' motivation. For instance, Radil et al. (2023) emphasize that creating a safe and inclusive classroom environment, where learners feel supported and unafraid to participate will encourage them to take academic risks, including active engagement in NT. They also stress the importance of setting clear and achievable learning goals that give students a sense of direction and purpose. Similarly, Jack et al. (2024) demonstrated that incorporating gamified elements into classroom tasks significantly increases students' motivation and engagement. Tools like badges, reward systems, and progress tracking can make NT more interactive and rewarding. In addition, integrating platforms such as Socrative has been shown to foster collaborative learning environments, as seen in the work of Awedh et al. (2015), who found that technology-assisted classroom participation enhanced motivation and learning

outcomes. To translate these findings into classroom practice, teachers can adopt the following model:

a- Create a supportive learning climate: Establish a classroom environment that normalizes mistakes and encourages effort, ensuring that students feel comfortable and participate without fear of judgment.

b- Set purposeful goals for NT: Clearly explain the purpose and benefits of NT. Provide students with concrete goals for each session, such as identifying the main ideas or summarizing key concepts.

c- Offer immediate and constructive feedback: Use strategies like guided notes, peer sharing, or response cards to provide feedback on how students organize and record information, reinforcing good practices.

d- Gamify NT tasks: Introduce elements such as completion points, challenges, or recognition for consistent NT to make the process engaging.

e- Incorporate collaborative technologies: Use digital platforms (e.g., Socrative or shared documents) to encourage students to co-construct notes and reflect together, boosting accountability and motivation through social interaction.

By implementing this model, teachers not only promote extrinsic motivation but also lay the groundwork for deeper cognitive engagement and more effective NT practices.

3.2.4 Incorporating Collaborative NT

In contemporary educational contexts, the development of students' NT skills requires not only individual effort but also the strategic incorporation of collaborative learning practices. Many learners face challenges in taking effective notes independently due to limited awareness of NTS, difficulties in multitasking, or a lack of structural guidance. To address these issues, collaborative NT presents itself as an effective pedagogical approach that promotes active engagement, shared understanding, and deeper cognitive processing. Consequently, educators are encouraged to integrate this strategy into their instruction to support students in developing more effective NT habits.

Collaborative NT involves students working together to produce a shared set of notes during lectures, discussions, or study sessions. This collaborative process supports the co-construction of meaning, enabling students to clarify concepts, summarize essential points, and assist one another in identifying and organizing key information. When implemented

systematically, collaborative NT contributes in enhancing comprehension, retention, and fostering peer-to-peer learning.

To facilitate the effective application of this strategy, an instructional model inspired by the Collaborative Encoding-Storage Paradigm proposed by Fanguy et al. (2023) can be adopted. The following structured framework is recommended for implementation:

a- Structured group formation: Organize students into small, diverse groups to encourage a range of perspectives.

b- Role assignment: Assign specific roles within each group, such as summarizer, questioner, or clarifier, to ensure active participation from all members.

c- Utilization of collaborative tools: Leverage digital platforms like Google Docs or Mural to facilitate real-time collaboration and easy access to shared notes.

d- Guidelines and training: Provide students with clear guidelines on effective NTS and conduct training sessions to familiarize them with collaborative tools.

e- Regular feedback and reflection: Incorporate periodic reviews of the collaborative notes, offering feedback and encouraging students to reflect on their learning process and group dynamics.

By integrating collaborative NT into instructional practices, teachers can create a more inclusive and engaging learning environment. This strategy not only enhances students' NT skills but also promotes active learning, critical thinking, and effective communication among peers.

3.2.5 Seating Setups for Optimal Learning

The physical layout of a classroom plays a crucial role in shaping students' learning experiences. It influences how students interact with their environment, with each other, and with the teacher. This arrangement is particularly important when it comes to student engagement and NT efficiency. A well-thought-out seating plan can promote better communication, increase participation, and create an atmosphere conducive to active learning.

Research consistently supports the idea that specific seating configurations can significantly enhance student motivation and participation. Among these configurations, the U-shaped seating arrangement stands out as an effective model for encouraging active engagement. This arrangement places students in a semi-circle or horseshoe shape, which

offers clear advantages in terms of visibility and interaction. All students face the teacher, and importantly, they are also positioned to engage with one another.

A study conducted by Halim and Mustar (2017) highlights the benefits of the U-shaped seating arrangement in a classroom environment. According to their findings, this layout not only improves communication between students and teachers but also increases students' enjoyment of learning. The U-shape allows for better eye contact between the teacher and students, making it easier for students to ask questions, provide input, and receive immediate feedback. This open and interactive atmosphere fosters a sense of inclusivity, ensuring that every student is actively involved in the learning process.

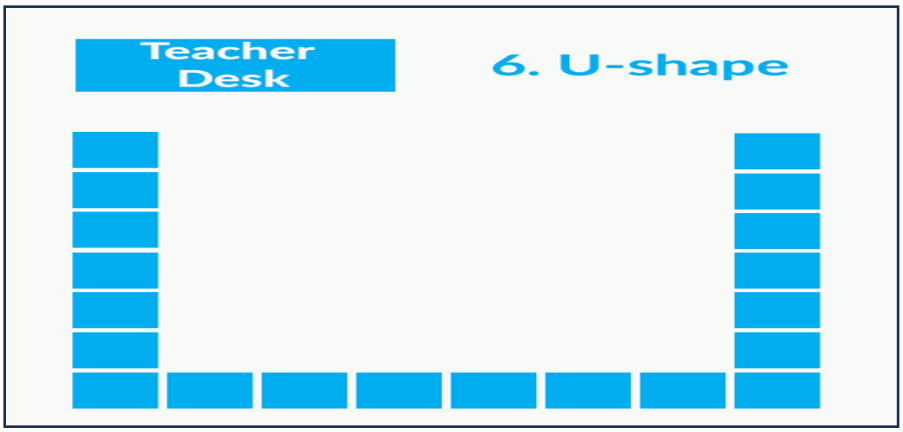


Figure 3.1: U-shape seating arrangement. Adopted from Renard (2020)

Teachers are encouraged to consider seating arrangements intentionally, as their impact on student engagement and interaction is profound. The choice of seating should serve instructional goals, creating an environment where students are encouraged to participate, collaborate, and learn effectively. The U-shape seating arrangement, with its focus on visibility, interaction, and inclusivity, is a purposeful choice that can foster a more engaging and productive learning experience.

3.2.6 Establishing Cues and Use of Reminders

Cues and reminders are powerful strategies that can significantly enhance students' engagement and the effectiveness of their NT. When teachers provide clear cues, such as emphasizing key points with phrases like "*This is important*" or visually highlighting critical information, they help students recognize what matters most. This guidance supports learners in distinguishing between essential and less essential content, leading to more structured and complete notes. Furthermore, using reminders throughout the lesson, such as prompts to recall prior knowledge or encouragement to write down ideas, reinforces active listening and deepens understanding.

As Titsworth and Kiewra (2004) demonstrate, students who receive spoken organizational cues produce higher-quality notes and perform better academically. Similarly, research by Wahlheim et al. (2019) and McKinley and Benjamin (2020) highlights that timely reminders promote memory retention and attentive learning. However, it is important to use these strategies in a way that encourages students to gradually develop autonomy in identifying important information themselves.

Teachers are therefore encouraged to establish purposeful cueing systems and incorporate gentle reminders during instruction to raise students' awareness of the importance of NT and help them adopt it more effectively as a learning strategy.

3.3 Students' Strategies to Enhance NT

While teachers play a central role in fostering an environment that encourages effective NT, the responsibility also lies on students to adopt strategies that enhance their own learning. These strategies are not one-size-fits-all; rather, they should be adapted to suit each student's individual learning style and the specific context in which learning occurs. Enhancing the effectiveness of NT can be achieved through the thoughtful application of the following strategies:

3.3.1 Adopt and Apply NTS

One of the most effective ways for students to improve their learning is by adopting structured NTS. Rather than writing down information randomly, using an organized method helps learners focus on key points and understand the relationships between ideas. Techniques such as the Cornell Method**,** mapping**,** and outlining provide a framework that guides students in recording, reviewing, and retaining information more effectively.

For instance, the Cornell Method is considered as one among the most widely recommended techniques. This method divides the note page into three distinct sections: a narrow left-hand column for key terms or cues, a larger right-hand section for detailed notes taken during the lecture, and a summary section at the bottom. During or after class, students can use the cue column to formulate questions or highlight important ideas, while the summary section helps consolidate and review the material in their own words.

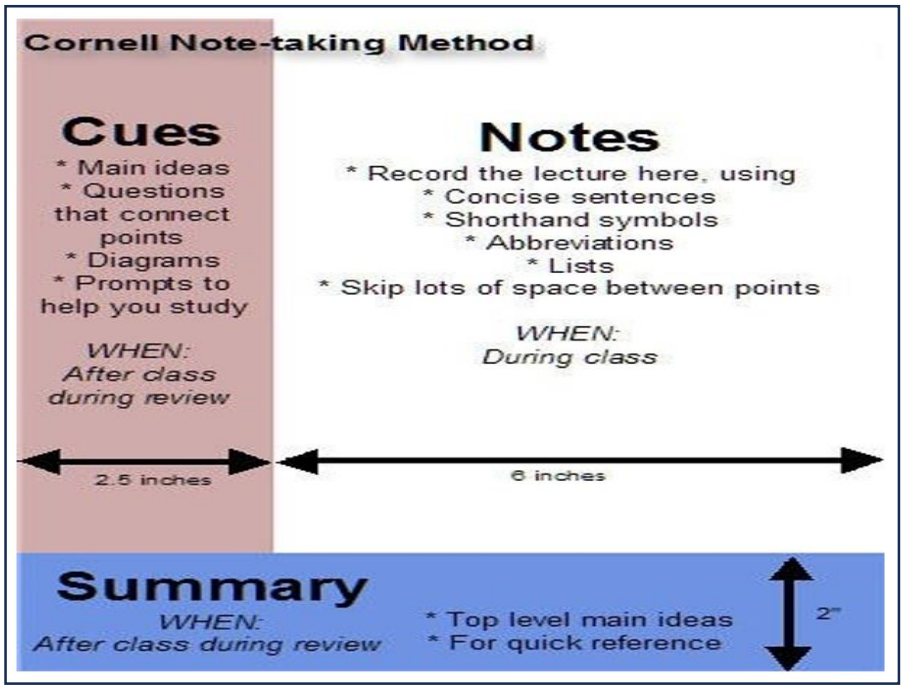


Figure 5.2: Cornell method. Adopted from Tutor IOWA (n.d.)

Recent studies further emphasize the value of the Cornell Method in enhancing students' academic performance. Abualzain (2024) found that students who applied this strategy demonstrated significant improvement in their listening comprehension and recall abilities. Similarly, Hendel (2024) highlighted the method's effectiveness in fostering organized thinking and better retention of lecture content. These findings suggest that structured methods like the Cornell Method not only improve note quality but also support deeper learning and recall.

Eventually, it is crucial for students to explore various methods and select the ones that best align with their learning preferences and the nature of the subject matter (Pauk, 2001; Rahmani & Sadeghi, 2011).

3.3.2 Being Self-regulated

Promoting self-regulation is essential for students aiming to enhance their NT practices and overall academic performance. Self-regulation refers to a learner's ability to manage their cognitive, emotional, and behavioral processes during learning. In the context of NT, this means being aware of what to record, how to organize it, and when to review or revise it. Effective NT is not a passive activity; it requires active engagement, goal-setting, and self-monitoring. Students who are self-regulated tend to plan their NTS in advance, monitor their comprehension during lectures, and evaluate the usefulness of their notes afterward. These habits contribute to deeper learning and long-term retention.

A recent study by Calamlam (2023) introduced a comprehensive model aimed at fostering self-regulated learning (SRL) among high school students through digital NTS. Conducted over two academic years with Grade 12 students in the Philippines, the study implemented a structured approach that integrated SRL principles into daily learning activities. The model is grounded in the cyclical phases of SRL; forethought, performance, and self-reflection; and encompasses seven specific learner tasks:

a- Setting weekly goals: Students begin by establishing clear, achievable objectives for the week, aligning their focus and efforts.

b- Scheduling weekly tasks: Learners plan their study sessions and allocate time for each subject or topic, promoting effective time management.

c- Acquiring learning content: Engaging with new material through readings, lectures, or multimedia resources to build foundational knowledge.

d- NT of learning content: Students employ digital tools to record key concepts, summaries, and personal insights, facilitating deeper processing of information.

e- Answering online quizzes and NT of computations: Applying knowledge through assessments and documenting problem-solving processes to reinforce understanding.

f- Self-Evaluation of online quiz performance and identification of errors: Reflecting on quiz results to recognize mistakes and misconceptions, guiding future study strategies.

g- Reflection on weekly performance: Assessing overall progress, identifying successful strategies, and planning adjustments for subsequent weeks.

This model not only improves students' academic performance but also enhances their ability to self-regulate their learning processes. The structured integration of goal setting,

strategic planning, active engagement, and reflective practices empower students to take ownership of their learning journey.

3.3.3 Being Motivated and Autonomous

Intrinsic motivation, the internal desire to engage in a task for its own sake; driven by curiosity, personal interest, or the satisfaction of mastery; is one of the most powerful factors contributing to effective learning and academic achievement. To become effective note-takers and autonomous learners, students must first cultivate self-motivation, recognizing the personal value in their educational journey rather than relying solely on external pressures like grades, deadlines, or teacher expectations.

According to Deci and Ryan's (1985) Self-Determination Theory (SDT), intrinsic motivation flourishes when three fundamental psychological needs are met:

a- Autonomy: The feeling of being in control of one's learning choices and actions.

b- Competence: The sense of being capable and effective in performing academic tasks.

c- Relatedness: The feeling of connection and belonging with others, such as peers and instructors.

Recent empirical research supports the effectiveness of this model. A study conducted by Meulenbroeks et al. (2023) with secondary school science students in the Netherlands found that inquiry-based learning (IBL), when appropriately scaffolded, significantly enhanced students' intrinsic motivation. The study highlighted that providing students with autonomy-supportive environments, opportunities to experience competence, and fostering a sense of relatedness through collaborative learning were key factors in boosting intrinsic motivation.

To cultivate intrinsic motivation in their academic routines, especially for demanding tasks like NT, students should be encouraged to:

a- Set personal academic goals and track their progress: This helps students feel in control of their learning, supporting autonomy and leading to greater motivation and persistence.

b- Engage in reflective and meaningful NT: Active NT, where students process and rephrase information in their own words, enhances competence and strengthens intrinsic motivation.

c- Seek and embrace constructive feedback: Feedback that is helpful and informative boosts competence and keeps students motivated.

d- Collaborate and share learning experiences with peers: Interaction with peers fosters relatedness, a sense of belonging, and increased student engagement and motivation.

Ultimately, when students are supported in ways that nurture their autonomy, competence, and relatedness, they are more likely to become intrinsically motivated. This leads to enhanced academic engagement, improved NT practices, and the development of long-term SRL habits.

3.3.4 Use Blended Notes

In an era where learning environments are becoming increasingly diverse, students are encouraged to adopt flexible and strategic NT approaches. One such approach is the use of blended notes, which combines traditional handwritten methods with digital tools. This hybrid strategy allows learners to benefit from the cognitive advantages of handwriting, such as enhanced memory retention and deeper processing, also leveraging the organizational flexibility, accessibility, and multimedia capabilities provided by digital platforms.

Research by Arden et al. (2024) from the University of Bristol reveals that students tend to shift between handwritten and digital NT depending on lecture style, course content, and personal learning preferences. Their findings emphasize the value of training students to make informed decisions about which method best serves their learning goals at any given moment. Similarly, Yang and Ogata (2023) highlight that students in blended learning environments who take structured digital notes using e-book platforms exhibit more self-regulated behaviors and achieve better learning outcomes. These students not only record information but also frequently revisit and reorganize their notes, suggesting that the value of NT lies in how it is used, not just in the act itself.

Moreover, Qiu et al. (2025) introduced an innovative tool called MaRginalia, which integrates real-time lecture capture with interactive digital annotation. Their study revealed that access to such integrated systems enhances student engagement by enabling live annotation while simultaneously organizing and personalizing learning materials. However, the implementation of such tools should be guided by pedagogical intent and reflective practice rather than convenience or novelty alone.

Based on these insights, students are advised to adopt blended note-taking strategically, aligning their methods with the demands of the learning task. For example,

handwritten notes may be more effective during cognitively demanding lectures that require focused processing, whereas digital tools are particularly useful for organizing, reviewing, and expanding on material after class. The aim is not to prioritize one method over the other but to combine them in a manner that maximizes engagement, supports comprehension, and fosters long-term academic success.

3.3.5. Adopting the PRESS Model

The P.R.E.S.S Model**,** introduced by Milligan (2014), offers a structured approach to effective NT. This model emphasizes a five-step process: Prepare, Record, Edit, Study and Succeed, guiding students to interact meaningfully with the material before, during, and after lectures.

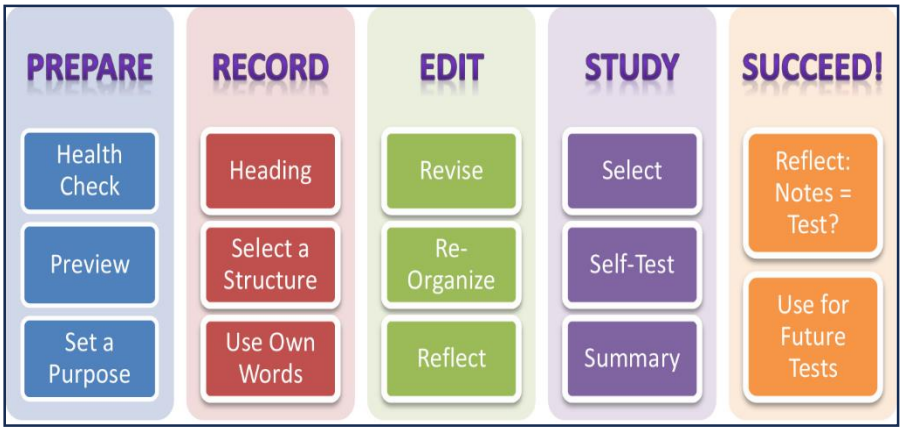


Figure 3.3: P.R.E.S.S Model for NT. Adopted from Milligan (2014)

The following is a concise summary of the five stages of the PRESS model:

1. Prepare: To begin effective NT, students must first get ready both physically and mentally.

a- Conduct a health check: Ensuring proper rest, nutrition, and punctuality enhances concentration and cognitive engagement.

b- Preview the reading or topic: Familiarizing oneself with the subject in advance allows for better anticipation and connection of ideas.

c- Set a purpose: Defining clear objectives helps students focus on relevant information and monitor their understanding throughout the learning session.

2. Record: During lectures or reading, students can effectively recognize key content using efficient methods like:

a- Use a heading: Adding the date, topic, and course details helps organize notes and makes it easier to find information later.

b- Select a structure: Choosing a suitable note format (e.g., outlines, mapping, Cornell) and using abbreviations enhances both speed and clarity.

c- Use your own words: Paraphrasing content encourages active processing and deeper comprehension.

3. Edit: After NT, students improve and reorganize their notes to reinforce learning.

a- Revise: Reviewing and correcting notes shortly after the session helps fill gaps and correct misunderstandings.

b- Reorganize: Restructuring notes (e.g., into diagrams or tables) strengthens conceptual connections.

c- Reflect: Making connections between new and existing knowledge encourages critical thinking and long-term retention.

4. Study: Students use their refined notes to prepare for assessments. They can apply the following steps:

a- Select: Identifying main ideas and organizing content into study plans ensures focused preparation.

b- Self-test: Creating practice questions supports active recall and highlights areas needing further review.

c- Summary: Writing brief summaries at the end of each section consolidates understanding and enhances memory.

5. Succeed: The final stage involves using notes to reflect on performance and plan for improvement.

a- What was on the test vs. what was in your notes: Comparing exam content to notes helps evaluate their effectiveness and guides future strategies.

b- Use for future tests: Maintaining a master list of key topics across lectures supports cumulative review and academic success.

In conclusion, students can greatly benefit from following the P.R.E.S.S. Model to develop NT habits. By adhering to its five-step process: preparing, recording, editing, studying, and reflecting, students can enhance their understanding, retention, and academic success. This structured approach encourages active engagement with the material, ensuring that students take comprehensive, organized, and useful notes for long-term learning.

3.4 Suggestions Related to Pedagogical Interventions

To support learners in developing efficient NT skills, certain pedagogical practices can be adopted prior to implementing structured teacher-based strategies. These interventions aim to reshape learners' attitudes toward NT and equip them with foundational techniques that serve various academic purposes.

3.4.1 Rethinking Resource Delivery

A notable challenge in the current academic setting is students' increasing dependence on pre-uploaded lecture materials on platforms like Moodle and printed handouts distributed during sessions. This readily available content often reduces students' motivation to take notes or engage actively with the lecture. To address this, instructors are encouraged to reconsider how they deliver resources. Rather than providing complete lecture materials, they may opt for sharing structured outlines, essential keywords, or guiding questions. This strategy aims to stimulate students' cognitive engagement, foster autonomy, and encourage them to develop their own NT habits during lectures.

3.4.2 Authoring Audio Recordings

Some students may find it difficult to process and write down information simultaneously, especially during rapid-paced lectures. Instructors may consider allowing students to record sessions for later review. It is important to highlight that this should be done with the teacher's consent and in accordance with ethical guidelines, it allows learners to complete their notes afterward and reinforce their understanding at their own pace.

3.4.3 Enhancing the Classroom Environment

The learning environment significantly influences students' ability to concentrate and take well-structured notes. A calm and well-managed classroom setting enhances attention and promotes the organization of information. Therefore, teachers are encouraged to create and maintain a quiet and focused atmosphere during instruction to help students listen carefully and take notes effectively. In addition, implementing motivational strategies, such as awarding participation points for maintaining organized notebooks or recognizing exemplary student notes, can encourage consistent and purposeful NT habits.

3.4.3 Implementing NT Syllabus

To ensure that students not only take notes but do so effectively, a structured syllabus focusing on NTS should be incorporated into existing modules or study skills workshops. This would offer systematic exposure to various methods and allow students to practice and

reflect on what suits them best across different academic tasks. A sample of a nine-week syllabus may include the following items:

Table 3.1: Nine-week Suggested Syllabus

Week	Content of the lesson	Objectives of the lesson	Suggested Activities
Week 1	Introduction to NT	Understand its academic value and common misconceptions	Discussion, analysis of sample notes
Week 2	Cornell Method	Divide and synthesize lecture content effectively	Apply the method in a lecture, share examples
Week 3	Outline Method	Build logical structure through hierarchy	Note a reading passage using outlines
Week 4	Mind-Mapping	Visualize relationships and ideas for presentations	Create maps from a topic or project plan
Week 5	SQ3R (Survey, Question, Read…)	Improve reading comprehension and retention	Practice with academic articles
Week 6	Fishbone Method	Organize and argue essays clearly	Diagram argument structure before writing
Week 7	Comparing Strategies	Evaluate usefulness across contexts	Mixed tasks with peer feedback
Week 8	Digital Tools	Introduce platforms like OneNote or Notion	Explore tool features, organize a lecture
Week 9	Reflection & Evaluation	Assess individual progress and preference	Write reflective piece and submit a portfolio

3.4.4 Formative Feedback on Notes

Providing formative feedback on students' NT serves as an important tool for improvement. Instructors may review a sample of students' notebooks and offer concise, constructive comments regarding organization, coherence, or the use of NT techniques. While not necessarily assessed for grading purposes, this feedback can guide learners toward better practices and increased self-awareness. When done regularly, it contributes to the development of more effective and purposeful NT behaviors.

3.4.5 NT Reflection Journals

Encouraging students to maintain a NT reflection journal promotes self-regulation and strategic learning. Through these journals, students can report on the techniques they used, evaluate their effectiveness, and reflect on any challenges faced during the NT process. Such regular reflection encourages metacognitive development and helps students adapt their strategies based on specific academic contexts. It also supports long-term learning by encouraging a personalized approach to knowledge retention.

3.4.6 NT Gamified Activities

Integrating NT challenges into the classroom can enhance engagement and stimulate strategic thinking. For example, students may be asked to summarize a lecture using only keywords, apply a specific visual method such as mind mapping, or organize content using dual-color schemes. These tasks encourage experimentation and creativity in processing information. When incorporated as part of class activities, such challenges motivate students to broaden their range of NTS and evaluate their effectiveness in different learning situations.

To further support this engagement, gamified elements may be introduced. Gamification refers to the application of features commonly found in games, such as points, levels, badges, and collaborative or competitive objectives, to academic tasks. For instance, students can participate in an activity called "*Note-Taking Bingo*", where they complete diverse NT tasks such as using the Cornell Method, summarizing with key terms, or incorporating visuals to complete a grid. Teachers may also implement "*Strategy Quests*", in which students accumulate points or tokens for effectively applying various NTS across several lessons. Additional challenges, such as "*Design the Most Visual Notes*" or "*Peer-Rated Best Summary*", can be conducted individually or in groups to foster engagement and collaboration. Rewards may include verbal praise, participation marks, or having exemplary work displayed in class. When designed with clear educational objectives, these gamified practices enhance enjoyment and sustained development of efficient and strategic NT habits.

3.5 Research Limitations

Like any other research, this study encountered several limitations and obstacles during its implementation. Nevertheless, these challenges did not hinder its progress; rather, they highlighted areas for further improvement and strengthened the overall commitment to achieving its objectives.

One of the primary challenges faced during this research was related to data collection, particularly in the administration of the questionnaire. The researcher distributed 30 copies of the questionnaire to students in order to gather insights into their awareness and use of NTS. Unfortunately, only 21 students submitted usable responses. The remaining 9 responses were deemed invalid due to incomplete answers. For example, when asked to select between two options in yes/no questions, some students chose both options or left the questions unanswered. Additionally, the open-ended questions were frequently ignored.

Another limitation concerned the implementation of the pre-test and post-test components. While the tests were designed to be short and straightforward compared to other academic assessments, some students displayed noticeable apathy and reluctance to engage with the tasks. This lack of motivation posed a barrier to obtaining a fully representative set of test data. Furthermore, some students from both the control and experimental groups participated in only one phase of the testing process, either attending the pre-test but not the post-test, or vice versa. In order to ensure the reliability and validity of the test results, only the responses of students who completed both phases were considered. Consequently, the incomplete responses were excluded from the final analysis, which reduced the overall number of test participants and may have slightly affected the representativeness of the sample.

The instruction phase, which was intended to teach the effectiveness of NTS, also faced significant challenges. Despite the voluntary nature of participation and the limited duration of only two sessions, only five students agreed to be part of the instructional group at the beginning. This small number prompted the researcher to seek assistance from teachers to obtain time and teach. During these sessions, student engagement varied noticeably: while some students actively participated and expressed excitement about the activities, others remained silent and unresponsive, which may have impacted the overall outcomes of the instructional intervention.

Timing also played a crucial role in hindering the smooth progression of the research. The researcher aimed to complete the testing and instructional phases before the start of the holy month of Ramadan. However, after the administration of the pre-test, the university designated a week for the PhD entrance examination, during which regular studies and sessions were paused. This unforeseen disruption was immediately followed by the onset of Ramadan, during which many students did not attend classes regularly. As a result, the instruction phase was delayed until after Ramadan and the subsequent holiday break. These

interruptions significantly affected the original timeline and required rescheduling and additional coordination to ensure the study was brought to completion.

These limitations, while impactful, did not compromise the overall implementation of the study. Instead, they revealed practical constraints commonly encountered in field-based educational research, particularly in relation to participation, timing, and data completeness. Acknowledging these challenges contributes to a more accurate interpretation of the findings and highlights areas for methodological refinement in future studies.

3.6 Conclusion

This chapter underscores the profound impact that small and deliberate actions can have on improving NT skills. The recommendations presented, aimed at both students and teachers, focus on simple yet powerful strategies for academic success. Students are encouraged to adopt effective NT systems, enhance their self-regulation, stay motivated, and integrate blended NT approaches. Meanwhile, teachers are provided with practical techniques to guide students in mastering these skills, such as modeling, training, and fostering collaboration.

Additionally, the chapter sheds light on several challenges faced in study, including student apathy, a small sample size, and the constraints of short-term instruction. These limitations may have affected the broader applicability of the findings, yet they highlight areas for future research and refinement in the teaching and learning process.

General Conclusion

Note taking is a fundamental academic skill that facilitates information retention, critical thinking, and knowledge construction. Within the EFL context, developing structured note-taking habits is particularly significant, as it supports students in organizing linguistic input, enhancing writing performance, and building autonomous learning practices. This study was conducted to examine the effectiveness of note-taking strategies in fostering EFL learners' academic achievement. It explored students' current note-taking behaviors, evaluated the impact of an instructional intervention based on mind-mapping technique, and proposed pedagogical strategies to develop effective note-taking practices.

The research was guided by the following key questions:

➢ Do EFL students know how to take notes, or do they take notes in a random manner?

➢ Do students who receive instruction in note taking perform differently from those who do not?

➢ What strategies can be implemented to help students develop effective note-taking habits?

The main findings of the study indicated that a considerable number of EFL students either do not take notes at all or adopt unstructured and disorganized methods. Many learners rely on handouts or lecture materials posted online, thus missing the opportunity to engage with the content actively. These results confirm the first hypothesis, which proposed that students may lack structure and coherence in their note-taking practices.

In response to the second research question, the quasi-experimental phase revealed that there was no statistically significant difference between the performance of students who received instruction in mind-mapping and those who did not. Although the experimental group showed slight improvement in the organization of their ideas, this was not sufficient to produce measurable academic gains in the post-test. This outcome suggests that short-term instruction may not be enough to foster lasting changes in students' academic performance, and therefore the second hypothesis was not confirmed.

Regarding the third research question, the findings point to the importance of adopting a more sustained and integrative approach to note-taking instruction. Although the immediate results of the intervention were limited, the research highlights the potential of structured visual techniques, such as mind-mapping, to enhance cognitive processing when consistently practiced over time. It also underscores the necessity for teachers to scaffold students' development of note-taking skills gradually, using a variety of strategies that suit different learning styles.

The research process, while insightful, was not without challenges. The limited number of participants, particularly in the experimental and control groups, reduced the ability to generalize the findings. Issues such as low student engagement and incomplete questionnaire responses impacted the data quality. Additionally, scheduling disruptions due to institutional events and the holy month of Ramadan delayed the instructional phase. Despite these limitations, the study offers valuable insight into students' current practices and the potential benefits of explicit instruction in note taking.

This study contributes to the existing literature by addressing a relatively under-researched topic in the Algerian EFL context. While note taking is often assumed to be a basic skill, this research reveals that many learners are in need of structured support and that strategic instruction could enhance their engagement and academic outcomes. The study also emphasizes the need to view note taking not merely as a passive habit but as an active cognitive process that can be developed and refined through pedagogy.

Conducting this research has been both a challenging and rewarding experience. The process deepened the researcher's understanding of academic investigation, particularly in relation to data collection, analysis, and critical reflection. Obstacles such as limited access to participants, scheduling difficulties, and the nature of the topic demanded flexibility and persistence. However, these challenges also reinforced the importance of academic inquiry and encouraged a deeper commitment to addressing real educational needs.

Future research is recommended to explore the long-term effects of note-taking instruction across multiple strategies and skills, with larger and more diverse student populations. Studies that integrate note-taking development into broader curriculum planning and assess its impact on other areas of language learning, such as listening or reading comprehension, would further enrich the field. Additionally, classroom-based action research that includes teacher collaboration may offer practical frameworks for implementing note-taking instruction more effectively.

In conclusion, this study has highlighted that while note taking remains a fundamental yet often neglected aspect of academic success, isolated efforts to improve it are insufficient. A student-centered approach is required to foster meaningful and lasting change. The findings encourage educators, curriculum designers, and researchers to consider note taking as an integral part of EFL instruction and to invest in its pedagogical development.

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Appendices

Appendix A: students' questionnaire

Dear students, you are kindly invited to share your significant answers on the suggested questions that tackle the effectiveness of note-taking strategies in enhancing second year EFL students' academic achievements. Your answers will be of a great value in providing assistance to achieve the objectives of the study. Additionally, all of your answers will be kept confidential and only used for academic purposes.

Thank you beforehand.

Section 1: General Information

1. How long have you been studying English?

☐ Less than 2 years ☐ 2–5 years ☐ More than 5 years

Section 2: Current Note-Taking Practices

2. How often do you take notes during lectures?

☐ Never ☐ Rarely ☐ Sometimes ☐ Often ☐ Always

3. What do you usually note down during a lecture?

☐ Main ideas only ☐Keywords and examples

☐Detailed explanations ☐Random points

4. How would you describe your note-taking approach?

☐Organized and systematic ☐ Partially organized ☐ Random and unstructured

5. Do you take notes in all modules? ☐ yes ☐ no

If no, which module?.....

Why?.....

Section 3: Awareness of Note-Taking Strategies

6. Are you familiar with any note-taking strategies? ☐Yes ☐No

7. If yes, which strategy do you use most often?

…….....……

8. Have you ever been taught how to take effective notes? ☐Yes ☐No

Section 4: Perceptions of Note-Taking Effectiveness

9. How helpful do you think note-taking is for your academic success?

☐Very helpful ☐Helpful ☐Somewhat helpful ☐less helpful ☐Not

10. Do you review your notes after class?

☐Always ☐Often ☐Sometimes ☐Rarely ☐Never

11. Do you believe your current note-taking habits help improve your writing skills?

☐Yes ☐No

Section 5: Challenges and Suggestions

12. What challenges do you face while taking notes?

☐Keeping up with the teacher's pace

☐Identifying key points

☐Organizing the information

Other:……

13. What strategies do you think could encourage you to take better notes?

☐Training on note-taking methods

☐Using templates or tools (e.g., Cornell sheets)

☐Regular feedback from teachers

Other:……

14. In your opinion, what can be done to help students develop effective note-taking habits?

……

……

……

Appendix B: students' pre-test

The Benefits of Mindfulness Meditation

Mindfulness meditation is a practice rooted in ancient traditions, gaining popularity in modern times for its numerous health benefits. By focusing attention on the present moment, individuals can reduce stress and enhance overall well-being.

Studies have shown that regular mindfulness meditation can lead to improved concentration, emotional regulation, and a decrease in symptoms of anxiety and depression.

This practice encourages individuals to observe their thoughts and feelings without judgment, fostering a greater understanding of oneself. Incorporating mindfulness into daily routines doesn't require extensive time; even a few minutes each day can make a significant difference.

As more people seek natural and holistic approaches to health, mindfulness meditation offers a practical and accessible solution.

Adapted from (ESL Fast, n.d.). https://www.eslfast.com/

Full name:……

1. Fill in the gap based on the text:

Mindfulness meditation encourages individuals to observe their thoughts and feelings without …….

a) distraction

b) judgment

c) interest

d) hesitation

2. Which word means "paying close attention to the present moment"?

a) Meditation

b) Mindfulness

c) Anxiety

d) Emotion

3. Find a synonym for fostering from the text:

a) Reducing

b) Encouraging

c) Ignoring

d) Limiting

4. Say if the following statement are True or False:

Mindfulness meditation is a modern invention.

You must meditate for hours every day to see benefits.

Practicing mindfulness requires several hours each days to be effective.

5. Match each term with its definition:

Concentration	a) Managing feelings effectively
Emotional regulation	b) Focusing deeply on a task
Holistic approach	c) Addressing the whole person: mind, body, and spirit

6. Answer the following questions:

1. How does mindfulness meditation help in reducing stress?

……

……

2. What are some of the mental health benefits associated with regular mindfulness practice?

……

……

Appendix C: students' post-test

The Joy and Benefits of Engaging in Hobbies

Engaging in hobbies brings joy and supports well-being. Hobbies provide a healthy escape from daily routines, allowing individuals to explore their passions. Activities such as painting, gardening, or playing a musical instrument enhance creativity and reduce stress. Focusing on a pleasurable activity promotes relaxation and mental clarity. For example, knitting or woodworking requires precision, creating a meditative experience.

Moreover, hobbies foster social connections. Joining clubs or group classes allows individuals to meet like-minded people, promoting friendships and teamwork. Group activities such as sports or dance classes encourage cooperation and shared experiences.

Additionally, hobbies support personal growth. Learning new skills builds confidence and promotes a growth mindset. Pursuing hobbies is not only a pastime but also an investment in happiness, reducing stress and nurturing valuable relationships.

Adapted from (Prasanna, 2024). https://www.aplustopper.com/paragraph-on-my-hobby/

Full name:……

1. Multiple-Choice Questions

1. Which of the following is mentioned as a hobby that promotes mental clarity?

a) Playing video games

b) Gardening

c) Watching television

d) Cooking

2. What is one social benefit of engaging in hobbies?

a) Improving financial skills

b) Building friendships

c) Increasing physical strength

d) Learning new languages

3. How do hobbies promote personal development, according to the text?

a) By reducing the need for teamwork

b) By increasing self-confidence and persistence

c) By saving time during the day

d) By avoiding social interactions

2. True or False:

1. Hobbies only provide individual benefits and do not help with social connections.

2. Group hobbies can improve teamwork and cooperation skills.

3. Learning new skills through hobbies can boost self-confidence.

3. Vocabulary Matching:

Match the words to their definitions:

Persistence	a) The state of feeling healthy and happy
Accomplishment	b) The ability to produce original ideas
Creativity	c) A feeling of pride from achieving something
Well-being	d) The ability to continue trying despite difficultie

4. Fill-in-the-Blanks:

1. Hobbies such as…… and…… promote creativity and mental clarity.

2. Group activities like…… help individuals develop teamwork and social skills.

3. Learning new skills through hobbies boosts ……and encourages a growth mindset.

5. Open-Ended Questions:

1. How can hobbies reduce stress and promote relaxation according to the text?

2. What are two examples of hobbies that can promote social connections?

3. How can hobbies contribute to personal growth and self-confidence

Appendix D: Test Scores

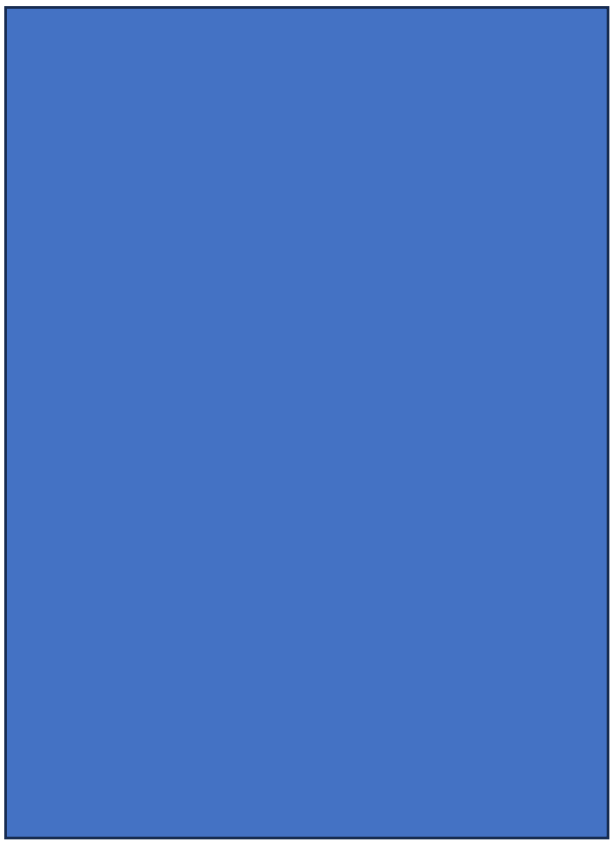
Experimental Group	Pre-test	Post-test	Control group	Pre-test	Post-test
1	16	17.5	1	8.5	9
2	16	10.5	2	10	13.5
3	13	16.5	3	6.5	13.5
4	17.5	19	4	11	9.5
5	14.5	13.5	5	9	15
6	7	13.5	6	10	10
7	16	12.5	7	15.5	11
8	17	12.5	8	8.5	15
9	11	13	9	15	12.5
10	13.5	10.5	10	13.5	12
			11	10.5	9

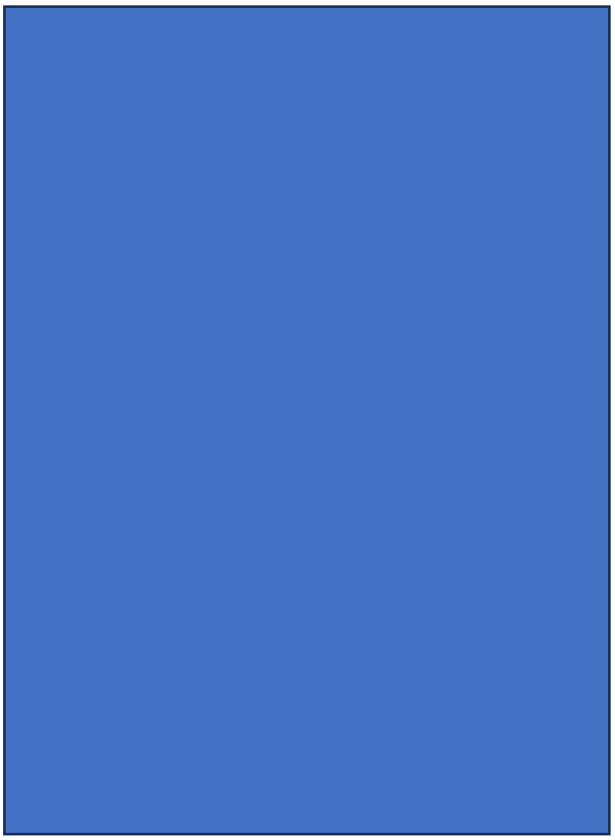
Appendix E: in-class notes sample during an observational session

Appendix E: pre-test's notes sample

Appendix F: notes sample during instruction

Appendix G: an example of mind-mapping system during a task





Appendix H: experimental group notes sample in post-test